BUREAU OF HYGIENE AND TROPICAL DISEASES.

TROPICAL DISEASES BULLETIN.

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PELLAGRA.

CORKILL (N. L.). **Pellagra in Sudanese Millet-Eaters.**—*Lancet.* 1934. June 30. pp. 1387–1390. [11 refs.]

——. **Pellagra in the Sudan.**—*Jl. Trop. Med. & Hyg.* 1934. June 15. July 2, July 16, Aug. 1, Aug. 15 & Sept. 1. Vol. 37. Nos. 12, 13, 14, 15, 16 & 17. pp. 177–183. With 1 map; 196–204. With 2 graphs; 214–218; 231–236 [34 refs.]; 245–251; 265–270.

These two papers, considered together for convenience sake, dea with an outbreak of pellagra among a tribe of Arab millet-eaters in the Sudan.

The rarity of pellagra in the Sudan has been ascribed to the fact that the Sudanese are mainly millet-eaters, whereas in Egypt, where the disease is common, maize is largely consumed. WILSON, however, has recorded pellagra in Egyptian millet-eaters.

The present papers deal with the author's clinical findings and conclusions based upon investigations carried out in a community of Arabs at Abu Deleig in the Butana Desert of the northern Anglo-Egyptian Sudan. Some 16 females and 33 males were found to be in an active stage of the disease. In the period of maximum incidence of the malady (hot, dry season) the vitamin supply, *i.e.*, milk, sinks to a level of practical deprivation. Millet alone remains as a food item and the biological protein value of the diet during this season is then below Wilson's critical value of 45 grams. At this time, too, there is marked deprivation not only of vitamins A, C and D, but also of the food sterols.

It is suggested that " three or more of certain physical signs, namely deepened pigmentation of the cheeks and forehead, the sulphur-flaking appearance on the nose, cheeks and forehead, blue or black gums, blue or black patches or points on the tongue and the impression of the teeth on the buccal mucosa justify a diagnosis of pellagra in the Sudan." The disease has three stages or phases: (1) in which the signs just mentioned are present, but subjective symptoms are absent. (2) in which physical signs are more pronounced and symptoms supervene; and (3) in which physical signs are less obvious and symptoms absent or only present after exposure or fatigue. The first and

third stages are regarded as latent pellagra. It is to be noted that objective signs of typical dermatitis can rarely be appreciated in pigmented Sudanese. Such factors as sex, age, occupation, katabolic acceleration (fatigue, disease and snake poison), insolation, season and diet affect the course and nature of the disease. Dental caries and pyorrhoea were commonly found, but it was observed that the severer the pellagra the less was the degree of caries. Of the 16 female pellagrins, 9 were melancholics and of the 33 males 4 presented some mental change. Suicide seems to have been relatively frequent in this community.

The author is of the opinion that " pellagra is essentially an allergic disease and that deficiencies of the vitamins A and C contribute their characteristic effects to the syndrome as do also cereal toxamins. Further, it is suggested that the body's cholesterol is mobilized for photosynthesis of vitamin D in the skin and that withdrawal of cholesterol from the central nervous system, the gonads and adrenal cortices, is responsible for some of the manifestations of pellagra." The characteristic dermatitis is an allergic response to sun trauma and pigmentation is protective. The sebaceous dysfunction (sulphur-flaking) so commonly met with in pellagra indicates a heavy photosynthesis of vitamin D and it is suggested that this vitamin, and not vitamin B_2 (the existence of which is doubtful) is the true anti-dermatitis factor.

The disease in the Sudan should be controlled by increasing the cultivation of vitamin- and phytosterol-yielding crops.

[These two papers record a very large amount of work and so numerous are the observations made that it is difficult to do them full justice in a short abstract. Only some of the author's observations and conclusions can be mentioned.] *A. D. Bigland.*

YANG (Chi-Shih) & HUANG (K. K.). **An Outbreak of Pellagra in Nanking. A Report of 30 Cases.**—*Chinese Med. Jl.* 1934. Aug. Vol. 48. No. 8. pp. 701–723. With 1 fig. [76 refs.]

An outbreak of pellagra among soldiers in Nanking is described, together with full details of 30 cases.

In 1920 the first report of pellagra in China was made, 4 cases being observed by JOUVEAU-DUBREUIL in Szechuan [see this *Bulletin*, Vol. 15, p. 283]. Since then small groups of cases have been reported from time to time, but the present paper deals with the first epidemic recorded in China. Thirty typical cases of the disease occurring in soldiers belonging to two camps in Nanking are described. The usual skin manifestations were present and out of 27 cases examined by sigmoidoscope 11 showed inflammation or ulceration of the rectum and lower colon. Of the 30 cases, 27 suffered from inflammation of the tongue and oral mucous membrane. With reference to the presence of glossitis, the following statement is of interest : " In the cavalry camp of 148 inmates among whom 29 cases of pellagra have been observed, 80 soldiers have variable degrees of this condition, while in the artillery group of 128 men with three cases of pellagra, over 70 showed definite signs of glossitis." Achlorhydria was found in only 3 out of 21 cases examined. Varying degrees of night blindness were recorded in 19 of 25 cases examined ; there was one case of retro-bulbar neuritis and one of keratomalacia. The blood findings revealed no special points of

interest, and the same may be said of neurological investigations with the exception that the patients were all normal mentally.

As regards diet it was found that these soldiers had been living upon a ration containing less than 10 gm. of animal protein a day. Nevertheless, the same diet was consumed in other camps where no pellagra was found. For purposes of treatment, cases were divided into two groups: (1) In addition to the ordinary hospital diet, these patients were given a daily ration of 30–50 gm. of animal protein. (2) This group received 100–120 gm. of protein. Yeast in 3 gm. daily doses was given to all. No results warranting generalization were obtained, but it is recorded that no deaths occurred.

The authors draw attention to the multiple deficiency conditions present in some of these cases and they are of the opinion that "pellagra is a symptom complex rather than a disease entity due to the deprivation of one single food factor." *A. D. B.*

Yu (K. Y.). **Pellagra in Manchuria. Report of Three Cases.**—*Chinese Med. Jl.* 1934. Aug. Vol. 48. No. 8. pp. 724–735. With 6 figs. on 2 plates. [26 refs.]

An account is given of three cases of pellagra in Manchuria. This is the first record of the disease in this country.

Pellagra has never before been recorded in Manchuria. The three cases were all of the female sex, in which the disease was associated with other conditions, viz.: chronic amoebic dysentery, ankylostomiasis and tuberculosis. In all a monotonous and inadequate diet had been taken. The first two cases responded well to treatment (diet, yeast, thiosulphate, hydrochloric acid, etc.) but the last case, on account of tuberculosis, did not improve. Among the investigations made the following may be noted: oedema over the front of the legs, with high chloride and low total protein contents of the blood, was present in all; so also was indicanuria. Hypochlorhydria was found in two cases and achlorhydria in one. Blood calcium findings were normal in the first case, in the second case the figure of 14·6 mgm. per 100 cc. of serum was obtained; in the third case hypocalcaemia (8·2 mgm. per cent.) was present. In two cases examined haematoporphyrinuria was not detected and the diastatic index of the urine was normal. Clinically the cases presented typical appearances. *A. D. B.*

Mills (Stephen R.). **Alcoholism and Pellagra.**—*U.S. Nav. Med. Bull.* 1934. Oct. Vol. 32. No. 4. pp. 493–497. With 1 plate.

Discusses a series of pellagra cases in which a common etiological factor was alcoholism with consequent deficient food intake.

Twelve cases of pellagra were admitted to the Naval Hospital, League Island, Pa., during the summer of 1930. The disease is relatively uncommon in this district. Three cases are described in detail and all presented the following features:—alcoholism, glossitis and angina, achlorhydria, enterocolitis and colitis, dermatitis, delirium or dementia, and emaciation; four cases ended fatally.

In most of the cases symptoms of pellagra followed a prolonged alcoholic debauch with consequent marked limitation of food.

A. D. B.

URBACH (Josef). Sporadische Pellagra in Wien und Niederösterreich. [**Sporadic Pellagra in Vienna and Lower Austria.**]—*Med. Klin.* 1935. Jan. 18. Vol. 31. No. 3. pp. 79–82. With 1 fig.

Five cases of sporadic pellagra occurring in Austria are described.

Of the five patients, four lived in Vienna and one in lower Austria. There were four women and one man, their ages being about 60. Two cases may be described as primary, while in three, pellagra was associated with gastric carcinoma, chronic phthisis and chronic epilepsy respectively. A one-sided deficient diet was the probable cause of the disease, but in two patients alcoholism was a marked feature. None of the sufferers had lived upon maize, but all had had a protein-deficient diet. Three recovered without any special treatment and the two deaths were due to the primary cause to which pellagra was only secondary. *A. D. B.*

SPIES (Tom D.), PAYNE (Warren) & CHINN (Austin B.). **A Note on the Relationship of Pellagra to Pernicious Anemia.**—*Proc. Soc. Experim. Biol. & Med.* 1934. Nov. Vol. 32. No. 2. pp. 328–330. [10 refs.]

In some respects pernicious anaemia and pellagra may be regarded as similar conditions. The present paper gives the result of yeast treatment in both diseases. Failure is recorded in the former and success in the latter.

Pellagra and pernicious anaemia are both special types of deficiency disease and they have in common, achylia gastrica, glossitis, peripheral neuritis and central nervous system changes. Spies and Payne have shown that the gastric secretions of pellagrins contain the necessary "intrinsic factor," since remissions in two patients with pernicious anaemia were obtained by the injection of a mixture of beef muscle and achylic gastric juice derived from acute pellagrins. These authors suggest that pellagra results from inadequate food ingestion, whereas pernicious anaemia is caused by the failure of the gastric juice to manufacture an anti-anaemic substance from food. STRAUSS and CASTLE have found that the "extrinsic factor" in food is associated with vitamin G.

In view of the fact that in certain cases of pellagra and pernicious anaemia a cure has been obtained by the administration of yeast, the authors of the present paper have studied the therapeutic effect of autoclaved brewer's yeast in the two diseases. For this purpose five typical cases of pernicious anaemia, and 30 cases of typical pellagra were selected. In the pernicious anaemia group, after 10 daily injections of a mixture of 150 cc. of normal gastric juice and 50 gm. of yeast no change in the blood picture was noted. Each of these pernicious anaemia cases, however, responded at once to liver extract administered intramuscularly. On the other hand, the pellagrins were given a diet deficient in pellagra-preventive substance together with a daily dose of 50–100 gm. of yeast. All signs and symptoms promptly disappeared.

"The present study suggests that the chemical substance in yeast utilised by the pellagrin to remit his disease, is not the same as the precursor of the anti-anaemic factor found in food (extrinsic factor)."

A. D. B.

SLATINEANU (A.) & BALTEANU (J.) in Collaboration with M. SIBI, J. NITZULESCU, M. FRANCHE, L. CANTACUZINO, Z. PARASCHIVESCU, E. VEIT & D. LUPU. Contribution à l'étude des troubles métaboliques dans la pellagre. Exploration fonctionnelle du foie et du rein. [**Metabolic Derangements in Pellagra.**]—*Arch. Roumaines Path. Expérim. et Microbiol.* Paris. 1934. Sept. Vol. 7. No. 3. pp. 365–391. [54 refs.]

Certain biochemical investigations carried out upon 70 pellagrins in Rumania are here recorded.

All the cases were examined during the stage of erythema. The following findings are presented. (1) The various functions of the liver were investigated (ammoniogenetic, glycogen regulation, pigmentary and chromogogic). It was found that 88 per cent. of cases showed more or less characteristic alterations in at least one of these functions. Out of 62 patients signs of hepatic insufficiency were noted in 55. (2) Kidney functions were investigated in respect of Ambard's constant, phenolsulphonephthalein elimination and the power to concentrate sodium chloride. Ambard's constant was defective in 25 cases, elimination of P.S.P. was insufficient in 17 cases, and there was a poor concentration of sodium chloride in 13 cases. Nineteen cases gave normal figures. (3) As a result of hepatic insufficiency, and often of renal insufficiency also, it was found that a large percentage of cases showed acidosis revealed either by raised ammoniacal coefficients, or diminution of alkaline reserve, or sometimes by the pH of the blood and urine. The authors are of the opinion that in certain cases such hepatic and renal insufficiency, associated with acidosis, may explain some of the metabolic disturbances met with in pellagra and may also perhaps account for some of the symptoms of the disease. *A. D. B.*

CRANE-LILLIE (Margaret) & RHOADS (C. P.). **Pathology of the Central Nervous System in Canine Black Tongue.**—*Arch. Pathology.* 1934. Oct. Vol. 18. No. 4. pp. 459–472. With 5 figs. [18 refs.]

So many similarities between pellagra and canine black tongue have been recorded that many observers regard the two diseases as one and the same. The characteristic nervous system changes in pellagra, however, have not as yet been found in black tongue. The present paper deals with this discrepancy and it is reported that neuropathological changes in fact do occur in black tongue.

Canine black tongue and pellagra both present similar symptoms, *e.g.*, stomatitis, glossitis, salivation and diarrhoea. In fact WHEELER regards the two diseases as one and the same, " on account of their seasonal and geographical incidence, their common cause and similar course, their identical pathological changes and their equal response to the same therapeutic and preventive measures." One great pathological difference, however, has been recorded ; in pellagra there are characteristic changes in the central nervous system, while in black tongue these are said to be absent. " This discrepancy is of more importance because of recent studies showing the effect of lack of the vitamin B complex on the production of lesions of the central nervous system marked by loss of myelin." Such degenerative lesions of myelin and nerve cells are undoubtedly present in pellagra and the authors here consider the possibility that similar changes in canine black tongue have been overlooked by previous workers. Accordingly

the brains and spinal cords of 12 dogs dying of acute black tongue were examined by modern neuropathological methods. In all the animals slight disintegration of myelin was found together with irregularity, swelling and shrinking of the fibres, but only occasionally was the myelin actually broken down into droplets. Alterations in the axones and degenerative changes in the nerve cells were also recorded. In short, " the changes observed were similar in many respects to those seen in pellagra. These changes were also similar to those described as occurring in animals kept on diets deficient in vitamin B complex."

A. D. B.

BRESTER (A.) & HULST (L. A.). Een geval van vermoedelijk secundaire pellagra.—*Nederl. Tijdschr. v. Geneesk.* 1935. Jan. 12. Vol. 79. No. 2. pp. 158–166. With 1 plate. [23 refs.] English summary (8 lines).

CAVALCANTI (L. Robalinho). Pellagra. Considerações sobre tres casos de erythema pellagroide.—*Brasil-Medico.* 1934. Dec. 8. Vol. 48. No. 49. pp. 1017-1028. With 3 figs. [39 refs.] English summary.

FLINKER (Robert). Pellagra und Pellagroid. Eine prinzipielle Feststellung.—*Schweiz. Med. Woch.* 1935. Feb. 9. Vol. 65. No. 6. pp. 137–138.

MEYER (Fr.). Zur Klinik der Pellagra.—*Klin. Woch.* 1934. Sept. 29. Vol. 13. No. 39. 1401–1402.

O'FLYNN (J. A.). A Case of Pellagra.—*Jl. Roy. Nav. Med. Serv.* 1935. Jan. Vol. 21. No. 1. pp. 54–57. With 1 fig.

SLOT (J. A.). Een geval van pellagra, waarschijnlijk als gevolg van een chronische darmziekte.—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1935. Jan. 22. Vol. 75. No. 2. pp. 124–130. With 2 charts, 1 text fig. & 3 figs. on 1 plate. English summary (6 lines).

TROPICAL OPHTHALMOLOGY.

A Review of Recent Articles. XXIII.*

Conjunctiva.—Francois[1] has described a form of *catarrhal conjunctivitis* which he regards as being *due to the diphtheria bacillus* though membrane formation is absent. The disease is chiefly met with in newly-born infants and may be considered a form of ophthalmia neonatorum. A muco-purulent conjunctivitis is present and this is frequently associated with slight enlargement of the preauricular gland and a rhinitis. The trouble is refractory to ordinary treatment but is readily cured by antidiphtheritic serum. Corneal ulceration may complicate the conjunctivitis, but the disease is on the whole the most benign of all forms of diphtheritic conjunctival inflammation.

Powell[2] has found that the inhabitants of a particular district in California are liable to attacks of *acute conjunctivitis* during hot and windy weather. This district was formerly a swamp, but reclamation has converted it into a very fertile land composed of peaty soil. Fires frequently involve large areas and the resultant fine ash mixed with silica particles and other salts is readily blown about. The attack occurs immediately after the patient has been struck by a sudden dust-laden gust of wind. A curious feature is that one eye only is attacked. The trouble is easily cured by ordinary simple measures.

Hoare[3] has a useful suggestion to make regarding the fixation of *protective conjunctival flaps.* The premature retraction of these sliding flaps, owing to the friability of the membrane, is a fairly common experience ; but if the bulbar conjunctiva is slightly undermined at the site of the proposed attachment and the free edge of the flap is implanted in the shallow pocket so formed (just as the apex of a pterygium is in a pterygium transplantation) some days will elapse before the flap recedes.

Trachoma.—MacCallan[4] has made a survey of the incidence of trachoma in the British Empire. He remarks that the disease may escape notice in some parts owing to the attention of the Public Health authorities being directed to the study of lethal diseases and to the failure of medical officers who have no specialist knowledge to recognize its presence. He states " In the absence of fulminating epidemics of acute conjunctivitis superadded to trachomatous conjunctivitis a population may be universally infected with trachoma without any insistent demand for treatment or prophylaxis. For instance, in some parts of India trachoma runs an uncomplicated course, the affection being accepted as an ordinary or natural occurrence, while in Palestine

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* For the twenty-second of this series see Vol. 31, pp. 858–862.

[1] Francois (J.). Catarrhal Diphtheritic Conjunctivitis.—*Brit. Jl. Ophthalm.* 1935. Jan. Vol. 19. No. 1. pp. 1–19. With 4 figs on 2 plates. [18 refs.]

[2] Powell (Barton J.), Jr. Uniocular Conjunctivitis from Peat Dust.—*Amer. Jl. Ophthalm.* 1934. Mar. Vol. 17. No. 3. pp. 206–208.

[3] Hoare (W. Wallis). Conjunctivoplasty. [Correspondence.]—*Brit. Jl. Ophthalm.* 1935. Apr. Vol. 19. No. 4. pp. 235–236.

[4] MacCallan (A. F.). Trachoma in the British Colonial Empire ; its Relation to Blindness ; the Existing Means of Relief ; Means of Prophylaxis.—*Brit. Jl. Ophthalm.* 1934. Nov. Vol. 18. No. 11. pp. 625–645.

hideous epidemics more than decimate the eyes of the natives." School treatment constitutes the best form of prophylaxis and this is best carried out by a specialist, though instillation of drops made regularly by the schoolmaster may be valuable.

BUSACCA[5] has published histological evidence in support of his view that Herbert's pits are due to focal thickenings of the corneal epithelium at points previously occupied by trachomatous nodules. Surface depressions tend to form during cicatrization of the nodules, but these depressions are at once occupied by proliferated epithelium. This results in the appearance of round greyish areas, which on superficial examination seem to be pits but are really filled by a transparent epithelium. Only exceptionally can a small depression be found at the centre.

MAJEWSKI[6] has recorded his experience of trachoma among children in Cracow. Over a period of ten years he has cured 1,346 children and sent home a further 167 who were partly recovered but required further treatment. The chief interest in his paper lies in his recognition of the important part which scrofulous conditions play in the disease as he has found it. He states, too, that orphanages and asylums in Cracow are now practically free from the disease and that the bulk of his patients at this time come from the northern and eastern provinces of Poland. 667 days represented the average period of treatment. BUSACCA[7] attributes the slight ptosis, which is such a characteristic sign in the early stages of trachoma, to the increased weight of the lid. In the later stages when the under-lying tissues in the upper fornix become involved disturbances occur in Muller's muscle and in the levator, and these may be sufficiently severe to cause a permanent ptosis.

TANG[8] has reviewed our knowledge concerning the aetiology of trachoma and concludes that little progress has been made towards the solution of the problem. No advance is probable until a susceptible animal, other than man, is found. SHALOM[9] recommends intra-corneal injection of cyanide of mercury in the treatment of severe trachomatous pannus. He employs a solution of 1 in 1,000 of a 2 per cent. novocaine in distilled water and claims that the injection is quite painless. "A few drops of the solution are injected slowly." The cornea assumes a greyish opaque colour during injection but clearing occurs in about ten or fifteen days. Recurrence may take place later but the injection can be repeated. It is necessary to employ a very fine needle.

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[5] BUSACCA (Archimede). On the Structure of Herbert's Pits.—*Brit. Jl. Ophthalm.* 1935. Jan. Vol. 19. No. 1. pp. 26–31. With 4 figs.

[6] MAJEWSKI (Casimir). Sur l'activité thérapeutique de la station pour les enfants trachomateux de Witkowice (Pologne).—*Rev. Internat. du Trachome.* 1934. Oct. Vol. 11. No. 4. pp. 198–203.

[7] BUSACCA (Archimede). Ptosi transitorie e ptosi permanenti nel tracoma.—*Rev. Internat. du Trachome.* 1934. Oct. Vol. 11. No. 4. pp. 204–214. With 2 figs. French summary.

[8] TANG (F. F.). Recent Progress in the Study of the Etiology of Trachoma.—*Chinese Med. Jl.* 1934. Sept. Vol. 48. No. 9. pp. 839–846. [21 refs.]

[9] SHALOM (Elias S.). Intra-Corneal Injections of Cyanide of Mercury in Trachomatous Pannus.—*Brit. Jl. Ophthalm.* 1935. Feb. Vol. 19. No. 2. pp. 107–111.

Ginger is another novel remedy which has been recommended by SOLOTNITZKY.[10] One part of powdered ginger is mixed with three parts of powdered sugar candy and the mixture strained through a silk sieve. The powder is applied to the everted lids and the eyes are closed for five minutes. During this time considerable pain may be experienced. The lids are again everted and the conjunctival sacs thoroughly irrigated in order to remove every particle of the remedy. A curious feature is that at first the patients tend to fall asleep for four or five hours after the application. The treatment is claimed to be specially useful in cases complicated by pannus and corneal ulceration. MOURZINN and SOUCHKOWA[11] have found that the lysozyme content of the tears is lower in trachoma than in other diseases of the eyes. TALBOT[12] as the result of his experience in Southern Tunis considers that prophylactic measures which fail to combat infantile infections are useless. The disease seen in the adult is merely a recrudescence of a latent infection contracted during infancy. Infection during school age is exceptional and trachomatous school-children have been infected in their homes. ALVARO[13] suggests that the low incidence of pterygium amongst trachomatous patients which is claimed by some writers may be due to the photophobia which causes them to keep their eyelids semi-closed and thus to protect the bulbar conjunctiva from sources of irritation likely to cause pterygium.

STAHOVSKY[14] has had good results from the use of subcutaneous injections of yatren in trachoma, and has recorded six cases which seem to have derived undoubted benefit from the injections.

Cornea.—Keratomalacia.—GOW[15] has found that 2·9 per cent. of the eye patients attending the Mukden Hospital suffered from keratomalacia. The disease was most prevalent during the month of April, and infants, children and adults were attacked. The usual treatment of cod liver oil gave good results.

Leukoma.—KIRWAN[16] has reported two successful cases of *corneal grafting* in opaque cornea. Both patients had suffered from interstitial keratitis and the opacity was sufficient to render them completely blind in the affected eye. Pre-operative treatment is important, both local and constitutional. A 4 mm. trephine is used for the donor eye and a 5 mm. trephine for the recipient. Both eyes are kept bandaged for a week and the affected one for a further fortnight.

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[10] SOLOTNITZKY (J. N.). Le traitement du trachome à l'aide du gingembre.—*Rev. Internat. du Trachome.* 1935. Jan. Vol. 12. No. 1. pp. 34–41. [10 refs.]

[11] MOURZINN (A. N.) & SOUCHKOWA (E. G.). Le lysozyme du liquide lacrymal dans le trachome.—*Rev. Internat. du Trachome.* 1935. Jan. Vol. 12. No. 1. pp. 1–15. With 3 diagrams. [14 refs.]

[12] TALBOT. La seule prophylaxie efficiente du trachome, fléau social.—*Rev. Internat. du Trachome.* 1935. Jan. Vol. 12. No. 1. pp. 15–24.

[13] ALVARO (M. E.). Ptérygion et trachome.—*Rev. Internat. du Trachome.* 1935. Jan. Vol. 12. No. 1. pp. 32–33.

[14] STAHOVSKY. Ueber die Behandlung des Trachoms mit subkutanen Yatren-Injektionen.—*Arch. f. Schiffs- u. Trop.-Hyg.* 1935. Jan. Vol. 39. No. 1. pp. 28–30.

[15] GOW (W. H.). Some Clinical Observations on Cases of Keratomalacia in Manchuria.—*Chinese Med. Jl.* 1934. Sept. Vol. 48. No. 9. pp. 885–889. With 2 figs.

[16] KIRWAN (E. O'G.). Corneal Transplantation on Opaque Corneas.—*Indian Med. Gaz.* 1935. Feb. Vol. 70. No. 2. pp. 61–62. With 3 coloured figs. on 1 plate.

Cataract.—PI[17] found that only 0·66 per cent. of 12,111 patients of the Peiping Eye Hospital suffered from senile cataract. This small proportion may be due to three reasons ; (1) Longevity is rare among the general population of China ; (2) the people regard Western forms of treatment with suspicion ; (3) an elderly person considers that inactivity is his rightful due and does not regard his disability seriously. The senile cataract age is five or ten years younger than in Germany or Japan. The same observer[18] reports the occurrence of cataract in four patients suffering from osteomalacia. Osteomalacia is stated to be very prevalent in many parts of China.

PISCHEL[19] reports a careful examination made by him of a series of unselected patients who had undergone operation for senile cataract at least two years previously. All had been operated upon at the Vienna clinic by MELLOR or by one of his assistants. In about half the number the lens had been extracted in its capsule, and in the remainder capsulotomy had been performed by removing the anterior layer of lens capsule with forceps. Only those intracapsular cases were considered which were entirely free from complication either at the time of operation or during convalescence ; but no such selection was made in the case of the capsulotomy patients. The author furnishes an excellent review of the comparative advantages of the two forms of operation, and concludes that " while the results in the successful intracapsular operation are practically as good as those in the well-performed extracapsular operation, there are more bad results even in a selected series of intracapsular operations than in an unselected series of extracapsular operations." Only 6·9 per cent. of the capsulotomy patients required subsequent discission, and this good result is attributed to the fact that a really large piece of the capsule is removed at the time of laceration.

Filariasis.—WRIGHT[20] has reported an intraocular infection by an adult *W. bancrofti.* The patient was a male Hindu, aged 25, resident in Madras and was admitted for an iridocyclitis of his right eye. Fine vitreous opacities, retinal haemorrhages and some optic neuritis were noted. Thirteen days after admission a filarial worm was seen moving rapidly about in the anterior chamber. The worm was removed three days later through a small keratome incision made in the cornea. In view of the difficulties experienced by Koman NAYAR in recovering the worm in a previous case, exceptional precautions such as surrounding the eye with a black mask and using a black dish to catch any fluid escaping from the eye were adopted. The worm escaped with the first drop of aqueous and, despite all precautions, was only found after a prolonged search with a binocular dissecting microscope. The patient made a good recovery ; but his optic disc on discharge presented the appearance of a subsiding neuritis with commencing atrophy. The

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[17] PI (H. T.). Cataract among the Chinese.—*Chinese Med. Jl.* 1934. Vol. 48. No. 9. pp. 928–947. [40 refs.]

[18] PI (H. T.). Subcapsular Cataract in Osteomalacia.—*Chinese Med. Jl.* 1934. Vol. 48. No. 9. pp. 948–964. With 9 figs. on 3 plates. [30 refs.]

[19] PISCHEL (Dohrmann K.). Comparative End Results in the Intracapsular and Extracapsular Operations for the Removal of Senile Cataract.—*Amer. Jl. Ophthalm.* 1934. Apr. Vol. 17. No. 4. pp. 326–333. [29 refs.]

[20] WRIGHT (R. E.). Adult Filaria (Wuchereria) Bancrofti in the Anterior Chamber.—*Brit. Jl. Ophthalm.* 1934. Nov. Vol. 18. No. 11. pp. 646–650.

retinal arteries were narrow and thread-like and the peripapillary retina a dull grey colour. The haemorrhages had disappeared.

A similar case is reported from Ceylon by FERNANDO[21]. The patient was a Singhalese male, aged 26, who lived in a village ten miles from Colombo. The worm was visible in the anterior chamber and had given rise to some cyclitis. ARNDT removed it through a corneal incision. The worm emerged with the first flow of aqueous but was caught on the lips of the corneal wound and required to be removed with forceps. It was identified by W. FERNANDO as *W. bancrofti.*

Onchocerciasis.—WILSON[22] reports an unusual case of onchocerciasis affecting the retina. The patient was a male aged 16 years. The uvea and anterior segment of the eye were perfectly normal. A short, greyish white thread-like object in constant wriggling movement could be seen attached by one extremity to the macula. The surrounding retina showed some mild inflammatory changes. The object was regarded as an *Onchocerca volvulus* owing to the circlets of protuberances which could be seen on the surface of the worm. The worm disappeared fifteen days later and its presence was followed by the development of an area of retinal atrophy. BRYANT[23] observed blindness to be extraordinarily rife amongst the population of the Bahr-el-Ghazal province. On investigation the bulk of the cases were found to be suffering from a gross form of retino-choroiditis associated with a secondary optic atrophy. Some blindness too, was due to typical onchocercal keratitis and the two conditions might be associated. The disease appears to have been introduced only recently and *Simulium damnosum* appears to have become more common also.

BOASE[24] when treating a patient for a syphilitic uveitis of his left eye found some signs of a past papillitis in the other eye. Owing to the occurrence of slight pain and lachrymation a slit-lamp examination was made and numerous small, white, thread-like bodies were observed wriggling through the aqueous. The author considers these to have been *Microfilaria perstans.* No sign of any uveitis was present in that eye whereas the other eye was free from filariae.

Cysticercus Cellulosae.—FENG[25] reports a case of subconjunctival cycticercus infection in a Chinese boy aged 13. The cyst was ovoid and measured 6 by 4 by 2 mm. It was painless and was situated near the insertion of the internal rectus muscle. Removal was easy. Although this is the first case reported from Peiping the author thinks the disease may not really be rare, and he urges greater care in diagnosis and in reporting cases.

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[21] FERNANDO (S. E.). Ocular Filariasis. (Adult *Wuchereria bancrofti* in the Anterior Chamber of Human Eye.)—*Jl. Trop. Med. & Hyg.* 1935. Jan. 15. Vol. 38. No. 2. pp. 17–18.

[22] WILSON (Rowland P.). Onchocerciasis of the Macula.—*Eighth Ann. Rep. Giza Memorial Ophthalmic Laboratory, Cairo, 1933.* pp. 85–87. With 2 coloured plates.

[23] BRYANT (J.). Endemic Retino-Choroiditis in the Anglo-Egyptian Sudan and its Possible Relationship to *Onchocerca volvulus.*—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1935. Mar. 8. Vol. 28. No. 5. pp. 523–532. With 1 map & 5 figs. on 2 plates.

[24] BOASE (A. J.). Ocular Filariasis.—*East African Med. Jl.* 1935. Jan. Vol. 11. No. 10. pp. 326–328.

[25] FENG (H. H.). Cysticercus Cellulosae Subconjunctivalis. Report of a Case.—*Chinese Med. Jl.* 1934. Sept. Vol. 48. No. 9. pp. 863–868. With 3 figs. on 2 plates. [21 refs.]

Retrobulbar Neuritis.—Chen P'AN[26] has recently observed an unusual number of Chinese patients in Nanking who suffered from retrobulbar neuritis. About 87 per cent. of the patients were soldiers and symptoms commenced from four months to four years after enlistment. Most were under thirty years of age. A central scotoma, relative or absolute, was the sole ocular sign. The cause is entirely obscure as in only very few could any of the ordinary factors be found. Treatment appeared to have no effect, but recovery seems to have taken place in course of time.

Eclampsia.—WRIGHT, NAYAR & NAYUDU[27] have investigated the visual changes amongst twenty-eight eclamptic patients in the Madras Government Hospital for Women and Children. Blindness without any demonstrable lesion is possible but very rare. Retinal haemorrhages and oedema without immediate interference with vision are relatively common. Retinal detachment following toxaemias of pregnancy is very rare.

Quinine Amblyopia.—A case has been reported by KING[28] in which a woman took about two teaspoonfuls of quinine [? sulphate] in order to procure abortion. Deafness, aphasia and partial blindness followed in three hours. The blindness increased during the next four days and vision was reduced to light perception whilst the pupils failed to react. The fundus at this time appeared normal with but little vessel change. Central vision began to return on the fifth day and a month later reached 6/9 partly, the visual fields being markedly restricted. There was then disc pallor with some vessel constriction. In discussing the case WOLFF suggested that the poison might reach the retina by way of the vitreous. This would account for the ganglion cells being affected before the vessels.

BERTRAND[29] in a survey of the most common diseases of the eye met with in North Togoland finds them to be in order, those of the posterior segment, of the lens, and of the cornea. The posterior segment diseases (choroiditis, retino-choroiditis, and optic atrophy) he regards as due to sleeping sickness. Senile cataract is on the whole comparatively rare and the lens troubles are mostly secondary to the above or to corneal inflammations. Corneal lesions are due to trauma or infection or both combined. The optic atrophy is of the primary type such as is often met with in syphilitic infections, but the author considers that the cause is undoubtedly sleeping sickness and that venereal disease may be excluded. No trachoma was seen in the country. Acute conjunctivitis is occasionally due to the Koch-Weeks bacillus, but more often occurs independently of any bacterial infection and is caused by the mechanical irritation of dust, etc. Gonorrhoeal ophthalmia when seen is rather benign in character and readily cured. [BRYANT's

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[26] P'AN (Chen). Retrobulbar Neuritis among the Chinese. A Preliminary Report.—*Chinese Med. Jl.* 1934. Sept. Vol. 48. No. 9. pp. 999–1005. [9 refs.]

[27] WRIGHT (R. E.), NAYAR (K. Koman) & NAYUDU (T. Vencatarangum). Disturbances of the Visual Apparatus in the Toxaemias of Pregnancy associated with Eclampsia or the Pre-Eclamptic State.—*Brit. Jl.. Ophthalm.* 1935. Jan. Vol. 19. No. 1. pp. 19–26.

[28] KING (E. F.). Quinine Amblyopia.—*Proc. Roy. Soc. Med.* 1935. Feb. Vol. 28. No. 4. p. 354 (Sect. Ophthalm. p. 26).

[29] BERTRAND. Les maladies des yeux en pays cabrais (Nord Togo).—*Ann. de Méd. et de Pharm. Colon.* 1934. July–Aug.–Sept. Vol. 32. No. 3. pp. 338–349.

report on onchocercal blindness in the Sudan might be considered in connexion with this paper.]

In the Matthai lecture for 1934 WRIGHT[30] dealt with the chief preventible blinding diseases of childhood in Southern India. He considers that keratomalacia is almost certainly the principal one and crude codliver oil is the most efficient remedy. For prevention better conditions of life are essential. Trachoma seems to occur more commonly amongst Mahomedans than Hindus in India and is a disease of the unwashed. Here, too, prevention depends upon a betterment of hygienic and general conditions. Ophthalmia neonatorum plays a less important rôle in India than in the West, and the strain of the gonococcus met with may possibly be less virulent. Syphilis, though one of the chief causes of blindness in the adult plays a smaller part in the blindness of children. The number of persons blinded by interstitial keratitis is relatively small. Smallpox is responsible for a considerable amount of blindness, whilst the use of irritant remedies causes an incredible amount of mischief. Hereditary blinding diseases are extremely common and retinitis pigmentosa is the most important of them. Nothing but good could result from the sterilization of all those who are known to be potential transmitters of hereditary blinding diseases.

The Annual Report of the Giza Memorial Ophthalmic Laboratory for the year 1933[31] is just as interesting as the previous seven. The Laboratory happily combines research, clinical work and teaching. Commenting on the incidence of various diseases, the Director, R. P. WILSON, remarks that ocular tuberculosis is remarkably rare in Egypt. The Koch-Weeks bacillus accounts for fifty-two per cent. of the purulent ophthalmias and the gonococcus for forty-eight per cent. The former infection is rife in spring and the latter in autumn. Between these two seasons bacterial growth is inhibited by the excessive temperature. The increased humidity of the autumn season favours the gonococcus which is unable to withstand the dryness of the early summer. Flies, too, are most prevalent in the early summer and in autumn and are less frequent in the height of the summer heat. Several interesting cases are reported, amongst them being one of probable onchocerciasis of the macula and another of schistosomiasis of the conjunctiva. Research in trachoma has been continued by E. H. STEWART who concluded that monkeys of the two genera Papio (baboons) and Lasiopyga (grivets) are completely susceptible to experimental infection with trachoma. He considers that Prowazek bodies are unlikely to be the cause of Egyptian trachoma. Filtrates of trachomatous matter are not infective, and the virus is not removed from the matter by repeated washings.

The Bulletin of the Ophthalmological Society of Egypt for the year 1934[32], contains many interesting papers and case histories. SOLIMAN described his experiences during a visit to the various Continental Clinics and gave a full account of Sinclair's technique for the extraction of cataract. BARRADA reported in full the case of filarial invasion

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[30] WRIGHT (R. E.). The Chief Preventable Diseases of Childhood.—*Jl. Madras Univ.* 1934. Dr. Elizabeth Matthai Lectures 1933–1934.

[31] CAIRO. Eighth Annual Report of the Giza Memorial Ophthalmic Laboratory 1933 [WILSON (Rowland P.), Director].—168 pp. With numerous illustrations. 1934. [25 P.T.]

[32] BULLETIN OF THE OPHTHALMOLOGICAL SOCIETY OF EGYPT. 1934. Vol. 27. Session 31. pp. xxxi+145. With numerous illustrations.

of the macula referred to above. DEMETRIADES reported three cases of optic neuritis which followed the administration of acetylarsan. Fortunately the trouble subsided without very serious damage to sight. BAKLY and BARRADA encountered a case of the very rare condition ophthalmomalacia. The patient was a girl, aged 23, and one eye was affected. This was soft. The cornea appeared nebulous owing to many wrinkles in Bowman's membrane. The anterior chamber was deep and the pupil contracted and inactive. There appeared to be a retinal exudate at the lower nasal side of the disc. The eye gradually recovered and she was discharged cured three months later. Relapse occurred, however, in two months time and recovery then was not so complete. *H. Kirkpatrick.*

KALA AZAR.

FORKNER (Claude E.) & ZIA (Lily S.). **Further Studies on Kala-Azar. Leishmania in Nasal and Oral Secretions of Patients and the Bearing of this Finding on the Transmission of the Disease.**—*Jl. Experim. Med.* 1935. Feb. 1. Vol. 61. No. 2. pp. 183–203. [11 refs.]

In a previous paper (this *Bulletin*, Vol. 31, p. 656), the authors reported the discovery of leishmania in smears made from the nasal secretion, saliva and tonsil of cases of kala azar. It was further noted that the nasal secretion of 2 cases produced leishmania infection in hamsters. The present paper gives further details of these observations and experiments.

Up to the date of writing, the nasal secretions of 22 cases of kala azar have been examined with the result that leishmania have been discovered in 12, while smears from the tonsil of 10 cases have revealed parasites in three. In most of the cases prolonged and careful examination with due regard to the structure of the organisms has been necessary to discover them. The intraperitoneal injection of hamsters with the nasal secretion of 14 cases has shown that living parasites were present in 13. The similar injection of sputum or saliva frequently resulted in the death of the animals from sepsis, but in 8 cases this did not occur, with the result that later two were found to be infected with leishmania. Material from the tonsil of 2 cases produced infection in hamsters. The nasal discharge from 5 cases was injected on a single occasion into the nasal and oral cavities of hamsters. In one case only did infection occur. Repeated injections of this kind have been carried out in hamsters and in two human volunteers, but the experiments are not yet complete. Emulsion of material from an infected tonsil produced infection in the hamster when administered by the oral route. The general argument of the paper is in favour of the oral route of infection in kala azar by means of parasites which escape from subjects of the disease in the secretions. In tabular form are arranged the arguments for and against direct transmission from man to man and the conveyance of the disease through the agency of the sandfly, and the authors conclude that the evidence presented strongly supports a theory of transmission of kala azar by means of direct or indirect contact infection. *C. M. Wenyon.*

BOGLIOLO (Luigi). Studi sulle leishmaniosi. VI. Sui rapporti tra sistema reticolo istiocitario e leishmanie. [**Relation between the Reticulo-Endothelial System and Leishmania.**]—*Pathologica.* 1934. Nov. 15. Vol. 26. No. 517. pp. 735–739. [29 refs.] English summary.

A study of cases of human and canine kala azar and oriental sore has led the author to the view that the parasitized cells are those of the reticulum of the haemolymphopoietic organs in the case of kala azar and those of the peripheral reticulum in the case of oriental sore. The cells from the two situations are indistinguishable and in both cases they have no bad effect on the parasites which, on the contrary, find in them a medium very favourable for their development.

C. M. W.

GIRAUD (P.). A propos de la transmission de la leishmaniose interne. Fréquence de l'atteinte par les tiques des jeunes enfants dans la région méditerranéenne. [**Transmission of K.A. in the Mediterranean Region, with Special Reference to Ticks.**]—*Bull. Soc. Path. Exot.* 1934. Oct. 10. Vol. 27. No. 8. pp. 731–733.

The author argues in favour of the view that infantile kala azar is transmitted by the dog tick in the Marseilles district.

Both infantile kala azar and "fièvre boutonneuse" occur in the district and both are found most commonly amongst young children. It is generally admitted that "fièvre boutonneuse" is conveyed by the dog tick, which attacks children more frequently and with much less irritation than is usually supposed. The author mentions a case of this disease in a child on which a search revealed an unsuspected tick fixed to the scalp and another case of the same disease which was followed by kala azar 2 months later. *C. M. W.*

ANDERSON (Charles). Chronique du kala-azar en Tunisie. [**K.A. in Tunis.**]—*Arch. Inst. Pasteur de Tunis.* 1934. Dec. Vol. 23. No. 4. pp. 455–464. With 1 map.

From time to time is issued a list of the cases of kala azar which have been noted in Tunis by the Pasteur Institute. The last one appeared in September 1930, since when a number of new cases have come to light bringing the total to 123 cases diagnosed by spleen puncture since the identification of the first case in 1906.

A remarkable feature of the disease in Tunis is that of the 123 cases 80 were children of Italian parents. No reason can be offered for the apparent greater susceptibility of this particular race. Six of the cases were in adults (aged 16 to 38 years), the rest being in children (aged 5 months to 10 years). A map shows that the disease is distributed throughout the northern half of Tunis, one case, however, having been found at Tozeur in the extreme south where oriental sore is common.

Some interesting details of leishmania which have been maintained in culture in N.N.N. medium for a number of years are given. These comprise 6 strains from cases of human kala azar isolated from 1910 to 1929 and subjected to 122 to 608 subcultures; 2 strains from cases of canine kala azar isolated in 1911 and 1913 and subcultured 558 and 547 times; 4 strains from oriental sore isolated from 1909 to 1926 and subcultured from 179 to 597 times; 2 strains from the gecko isolated in 1917 and 1919 and subcultured 411 and 347 times; in addition mention is made of a culture of a trypanosome of the toad which was maintained for 8 years, during which it was subcultured 210 times.

C. M. W.

FRANCO (Enrico Emilio). Le leishmaniosi nelle Puglie. [**Leishmanial Infections in Apulia.**]—Reprinted from *Boll. d. Accad. Pugliese di Sci.* 1934. Nov.-Dec. Vol. 10. No. 1–2. 46 pp. With 1 map. [62 refs.]

This is a general account of leishmaniasis as it has been found to occur in the Province of Apulia on the southern part of the Adriatic coast of Italy. In all there have been encountered 92 cases of kala azar and 4 cases of oriental sore. The general features of the diseases and the results of the investigations carried out, as far as they have gone, are similar to those which have been recorded for other parts of the Mediterranean region. *C. M. W.*

COLARIZI (Arrigo). Osservazioni clinico-statistiche ed epidemiologiche sulla leishmaniosi in Roma. [**Leishmanial Infections in Rome.**]—*Policlinico.* Sez. Prat. 1935. Mar. 11. Vol. 42. No. 10. pp. 413–16, 419–20, 423–4, 427–9. With 1 map. [23 refs.]

The author reviews the situation as regards kala azar and oriental sore in Rome. From 1911 to 1934 there have been encountered in the city 25 cases of kala azar of which at least 6 were actual autochthonous cases. During the same period 3 cases of oriental sore were met with and of these 2 were autochthonous. Thus kala azar and oriental sore appear to be endemic in Rome. *C. M. W.*

SEI (Mo Ten). **Distribution of Kala-Azar in the Southern District of Manchoukuo. Part 4. Conclusion.**—*Jl. Oriental Med.* 1935. Feb. Vol. 22. No. 2. [In Japanese pp. 403–429. With 11 figs. on 4 plates & 1 folding map. [69 refs.] English summary pp. 35–36.]

From surveys carried out by the author it appears that kala azar is widespread throughout Manchoukuo. In the districts of Syusuishi, Fukuken and Yugakujo 200 cases were found. It occurs most commonly in children from 4 to 7 years of age. The natives are skilled in the diagnosis of spleen tumour in children, reference to which appears in old literature of China of about 600 A.D. This is perhaps the earliest mention of the disease. *C. M. W.*

PENNA (H. A.). [In Portuguese & English.] Leishmaniose visceral no Brasil. **Visceral Leishmaniasis in Brasil.**—*Brasil-Medico.* 1934. Nov. 17. Vol. 48. No. 46. In Portuguese pp. 949–950. In English pp. 950–953. With 3 figs. & 1 map.

MAYER (M.). Viszerale Leishmaniose in Brasilien. Nach Befunden von H. A. Penna.—*Arch. f. Schiffs- u. Trop.-Hyg.* 1935. Mar. Vol. 39. No. 3. pp. 128–129. With 2 figs. (1 map).

The invention of the viscerotome, an instrument for puncturing the liver after death for the purpose of removing a piece of this organ for histological examination when autopsies are not possible, has opened up a number of new fields of enquiry. Designed primarily for the purpose of diagnosing yellow fever in cases which had died of a febrile disease of unknown origin, the instrument has thrown light upon the distribution of malaria, schistosomiasis and other infections in S. America, where a regular viscerotomy service has been instituted. During the 4 years preceding the end of September 1934, there were examined in this way some 47,000 human livers from patients who had died within 10 days of the onset of some febrile illness. An unexpected result has been the discovery in 41 cases of a hepatic leishmania infection, indicating the presence in Brazil of kala azar. The distribution of the infection is fairly general throughout the country, while the ages varied from 45 days to 56 years, 29 being under 10 and 25 under 5 years of age. Attention having been called to the infection, efforts are being made to discover cases clinically.

Commenting on these observations, the author of the second paper points out that MAZZA in 1926 reported 2 autochthonous cases of kala azar in children in Northern Argentine [this *Bulletin*, Vol. 24, p. 135], while BORSONE in 1928 recorded the case of a woman who had quartan

malaria and splenomegaly and at the same time cutaneous leishmaniasis. Leishmania were discovered in this case, not only in lymphatic glands, but also in the spleen by spleen puncture. The author wonders whether these cases with visceral leishmania infection are actually cases of kala azar or merely cases of the well known Brazilian leishmaniasis, in which the parasite has assumed a generalized distribution in the body. *C. M. W.*

FRÓES (Heitor Praguer). Leishmaniose visceral no Brasil e especialmente na Bahia. [**K.A. in Brazil.**]—*Brasil-Medico.* 1935. Jan. 26. Vol. 49. No. 4. pp. 109–112.

The recent discovery by PENNA of the existence of leishmania infection of the liver in a number of fatal cases of febrile disease in S. America has stimulated the author to write the article to call attention to the fact that the possibility of the existence in Brazil of kala azar has long been recognized, though in cases in which the disease was suspected laboratory confirmation by the discovery of the parasite has not been forthcoming. *C. M. W.*

BOGOJAWLENSKI (N. A.), MELIKOWA (T. A.) & DEMIDOWA (A. J.). Die viszerale Leishmaniose bei Kindern des Kasach'schen Distrikts. [**K.A. in Children in Turkestan.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1935. May. Vol. 39. No. 5. pp. 205–211. With 3 figs.

Kala azar is widely spread throughout Transcaucasia and in the present paper the authors give an account of the disease as it exists in the Kasach district of Turkestan, where it is common in children, amongst whom it exhibits the usual features of infantile kala azar. It occurs also in dogs, an examination of 137 of which gave a percentage of 19 infected. *C. M. W.*

GIRAUD (Paul). Sur la lyse possible des *Leishmania* dans l'organisme après la mort. [**The Possible Lysis of Leishmania in the Body after Death.**]—*C. R. Soc. Biol.* 1934. Vol. 117. No. 36. pp. 1017–1018.

The author calls attention to the fact that sometimes it is not possible to discover leishmania in the organs after death though there is every reason to expect them to be present. The cause of this is not clear, for in certain cases it is easy to find leishmania in perfect condition when the organs are in an advanced stage of putrefaction. This disappearance after death has been noted by other observers and it is well to bear it in mind, for the *post mortem* failure to find leishmania may be no indication that the disease was not kala azar. *C. M. W.*

ZIA (Lily S.) & FORKNER (Claude E.). **The Syndrome of Acute Agranulocytosis and its Occurrence as a Complication of Kala-Azar.**—*Amer. Jl. Med. Sci.* 1934. Nov. Vol. 188. No. 5. pp. 624–639. With 10 figs. (2 on 1 plate).

From the study of cases of kala azar at Peiping Union Medical College, China, the authors have come to realize that an important complication of the disease is acute agranulocytosis similar to that

which may accompany angina or pyogenic infections. It is acute in onset, usually of short duration and terminates rapidly in death or recovery.

The first clinical manifestations of this syndrome in kala azar are weakness and a feeling of exhaustion coming on rather rapidly over a period of 12 to 72 hours. At this period there is an increasing leukopenia with a decrease in the number of granulocytes. The symptoms become more intense, the leucocytes frequently falling to from 500 to 2,000 per cm. with a complete absence or presence of very few neutrophiles. After from 24 to 96 hours more alarming symptoms appear with high fever, redness and tenderness and ulceration of the mucous membranes. Unless there occurs spontaneously, or as the result of treatment, an increase in the number of neutrophiles, the symptoms progress and the patient succumbs. The condition in some of the cases of kala azar has occurred at the end of a course of antimony treatment. It seems that apart from general and local measures which would suggest themselves the administration of derivatives of nucleic acid may be a life-saving procedure.

The paper gives details of the blood examinations and is illustrated by a number of charts showing the fluctuations in the number of granulocytes, monocytes and other cells of the blood. *C. M. W.*

ZIA (Lily S.) & FORKNER (Claude E.). **Acute Agranulocytosis of Kala-Azar : Negative Effect of Urea Stibamine and Neostibosan on Blood of Normal Rabbits.**—*Proc. Soc. Experim. Biol. & Med.* 1934. Dec. Vol. 32. No. 3. pp. 536–538.

Owing to the fact noted in another paper that acute agranulocytosis may occur in kala azar during treatment with urea stibamine or neostibosan it was decided to observe the effect of the administration of relatively large doses of this drug on rabbits. One or other of these drugs was administered to a dozen animals but nothing comparable with acute agranulocytosis occurred. There was, however, hyperplasia of the spleen, lymph-nodes and bone marrow. Two of the animals showed cirrhosis of the liver and one proliferation of the bile capillaries. *C. M. W.*

FAN (P. L.) & SCOTT (Annie V.). **A Study of Noma complicating Kala Azar in Children.**—*Chinese Med. Jl.* 1934. Oct. Vol. 48. No. 10. pp. 1046–1057.

Amongst children suffering from kala azar in Tsinan, North China, noma is a serious complication, the general features and treatment of which in 33 cases is discussed in this paper.

Experience has shown that cases of noma derive great benefit from blood transfusion. The treatment with neostibosan consists in daily injections of the drug, the first dose being 0·1 gm., and the succeeding doses 0·2 gm. A total of 2 to 2·5 gm. is administered. A special diet is given, while the local lesion and the mouth are irrigated with a 1/2,000 solution of zinc chloride every one or two hours during the day, followed by the painting of the lesion with 2 per cent. mercurochrome solution. As a prophylactic measure against noma, every kala azar patient in whom the haemoglobin reading is below 50 per cent. is given a large blood transfusion before injections of neostibosan are instituted.

C. M. W.

PINEY (A.). **A Chapter of Accidents in a Case of Kala-Azar.**—*Lancet.* 1935. Apr. 6. pp. 809–810.

A case of kala azar in which during treatment with neostibosan the patient suffered from volvulus of the pelvic colon necessitating surgical interference, later from generalized oedema with suppression of urine relieved by injections of salyrgan and again a month later from a series of epileptiform fits followed by unconsciousness and return of the renal symptoms, which were again relieved by salyrgan. In spite of these set-backs a complete recovery ultimately ensued. *C. M. W.*

GIRAUD (Paul). Kala-azar très grave rapidement guéri par l'uréastibamine. [**Cases of K.A. treated with Urea Stibamine.**]—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1935. Jan. 21. 51st Year. 3rd Ser. No. 1. pp. 39–40.

——. Kala-azar stibio-résistant, guérison après deux ans et demi de traitement.—*Ibid.* pp. 41–43.

The two cases described were instances of kala azar in young children in Marseilles. One case was very severe with a haemorrhagic syndrome. It responded at once to injections of urea stibamine, which was well tolerated. The other case was much more resistant to treatment. Courses of urea stibamine changed to neostibosan had to be interrupted owing to intolerance. Finally, improvement commenced when a course of radiotherapy over the spleen, combined with injections of acetylarsan and a course of short wave pyretotherapy had been given. After this three further courses of urea stibamine were successfully administered. *C. M. W.*

ANDERSON (Ch.). Nouveaux essais de culture de *Leishmania donovani.* [**Cultivation of** *L. donovani.*]—*Arch. Inst. Pasteur de Tunis.* 1935. Jan. Vol. 24. No. 1. pp. 130–133.

In a previous publication (this *Bulletin*, Vol. 30, p. 318) the author reported the successful culture of leishmania in media composed of milk. A further study of the subject has somewhat modified his earlier opinion and he now doubts whether a milk medium is likely to give any practical results from the point of view of the maintenance of cultures of these flagellates. The fact that a certain growth does take place suggests that the influence of milk may be worth investigation. *C. M. W.*

i. NATTAN-LARRIER (L.) & GRIMARD-RICHARD (L.). Le développement des cultures de *Leishmania infantum* sur milieu N.N.N. "mouillé." [**Cultivation of Leishmania on Wetted N.N.N. Medium.**]—*Bull. Soc. Path. Exot.* 1934. Nov. 14. Vol. 27. No. 9. pp. 843–847.

ii. PARROT (L.) & DONATIEN (A.). Sur la culture des *Leishmania* en milieu N.N.N. "mouillé."—*Ibid.* 1935. Jan. 9. Vol. 28. No. 1. pp. 39–40.

i. The authors make some further remarks (*ante*, p. 87) about the behaviour of cultures of leishmania in which the water of condensation of N.N.N. medium after a certain period of growth has been replaced by 2 cc. of physiological saline solution ; if the tube is kept upright there is a delay in the multiplication of flagellates, whereas if it is

inclined, the growth is rapid. For the maintenance of cultures it is well to incubate in the inclined position for a few days after adding the saline solution and then to continue incubation in the upright position.

ii. The authors bear testimony to the value of this method and illustrate their remarks by quoting instances in which leishmania were kept growing for 58, 79 and 99 days respectively, saline having been added only once to each of the 3 tubes. *C. M. W.*

NATTAN-LARRIER (L.) & GRIMARD (L.). Les leishmanias peuvent-elles se multiplier par schizogonie? [**Can Leishmania multiply by Schizogony?**]—*C. R. Soc. Biol.* 1935. Vol. 118. No. 10. pp. 969–972.

On a number of occasions authors have described a process of multiplication of leishmania by schizogony, but most authorities have agreed that the appearances have been due to a mass of parasites being so closely packed together that in a dry smear the outlines of the individual parasites have ceased to be visible, so that the impression is given of a single cytoplasmic body containing a number of nuclei and kinetonuclei. Between these forms and masses of individualized parasites, it was easy to trace every gradation and to conclude that reproduction by schizogony was taking place. In the paper under review the authors describe appearances they have seen in preparations made from a Syrian hamster experimentally infected with canine kala azar.

While admitting that massing of parasites may occur as described above, they believe that true multinucleate forms are present and that they arise by growth and nuclear multiplication without immediate division of the cytoplasm. A number of such multinucleate forms are figured, some of them lying within vacuoles in endothelial cells. [It must be admitted that the figures show cytoplasmic bodies containing a number of nuclei and some, at any rate, of them may have arisen as the authors suggest. But, even if this be so, are the bodies schizonts in the strict meaning of the term and is the process true schizogony? In all the Trypanosomidae multinucleate forms occasionally occur during active multiplication, owing to delay in cytoplasmic division, but when division of such forms takes place, it is by repeated binary fissions and not by simultaneous budding of merozoites as in true schizogony, which is seen most characteristically amongst the Sporozoa].

C. M. W.

CHUNG (Huei-lan). **The Sedimentation Rate of the Blood of Patients with Kala-Azar.**—*Chinese Med. Jl.* 1934. Nov. Vol. 48. No. 11. pp. 1101–1112. [19 refs.]

An investigation of the sedimentation rate both by the time and distance methods has shown that this was increased in all of 36 cases.

This was associated with a decrease in plasma albumin and an increase in globulin, euglobulin and fibrinogen. Even when correction for the anaemia which occurred in the cases was made, the rate was still uniformly above normal. The sedimentation time for the 36 cases

varied from 9 to 62 minutes. For 14 normal Chinese males the time varied from 270 to 3,960 minutes, *i.e.*, 4½ hours to 2¾ days.

C. M. W.

BRUMPT (E.) & GALLIARD (H.). Grande sensibilité du spermophile d'Europe, *Citillus citillus*, au virus du kala-azar chinois. [**Susceptibility of the European Spermophile to the Virus of Chinese K.A.**]—*C. R. Soc. Biol.* 1935. Vol. 118. No. 1. pp. 21–23.

The case of kala azar of Chinese origin in a Frenchman (noted in another review) enabled the authors to prove that the European hamster (*Citillus citillus*) is as susceptible to the Chinese virus as CAMINOPETROS, ADLER and others have shown it to be to the European virus. Five hamsters inoculated intraperitoneally with rich culture died with heavy generalized infections after 45, 105, 125, 138 and 193 days respectively. A fatal infection was produced in a Palestine hamster (*Cricetulus auratus*), while 2 mice acquired a mild infection. In the hamsters the frequency of parasites in cells in the skin was a feature of the infections. *C. M. W.*

NINNI (C.) & TRAMONTANO (V.). Transmission de la leishmaniose tropicale au cobaye. [**Transmission of Leishmania to the Guinea-pig.**]—*Boll. Sezione Ital., Soc. Internaz. di Microbiologia.* Milan. 1934. Sept. Vol. 6. No. 9. pp. 338–343.

By inoculating material from oriental sore directly into the lymphatic glands of guineapigs the author has infected this animal with *Leishmania tropica*. The parasites which were found in the gland up to about 40 days were also detected in histiocytes in the mucosa of the bronchi. The results indicate that the guineapig is not a very susceptible animal. *C. M. W.*

PARROT (Louis). Évolution d'un hématozoaire du gecko (*Leishmania tarentolae*) chez un moucheron piqueur, du groupe des phlébotomes (*Phlebotomus minutus*). [**Development of** *L. tarentolae* **in** *P. minutus*.]—*C. R. Acad. Sci.* 1934. Nov. 12. Vol. 199. No. 20. pp. 1073–1074.

——. L'évolution de *Leishmania tarentolae* Wenyon chez *Phlebotomus minutus* Rond.—*Bull. Soc. Path. Exot.* 1934. Nov. 14. Vol. 27. No. 9. pp. 839–843. [10 refs.]

It has been known for some years that geckos (*Tarentola mauritanica*) in Algeria and Tunis are liable to a leishmania (*L. tarentolae*) infection, which can only be demonstrated by blood culture. It has been suggested by ADLER & THEODOR that a probable transmitter of this infection was *Phlebotomus minutus*, which was not present in Sicily where geckos were uninfected. The author describes experiments in which he shows that development of flagellates occurs in the stomach of this sandfly after feeding on an infected gecko. There is very active multiplication up to 48 hours after which the digested blood, together with the flagellates, passes into the hind gut to be completely expelled a day or two later. When this has occurred, flagellates can no longer be detected. It is supposed that geckos become infected by devouring sandflies harbouring these flagellates. *C. M. W.*

ADLER (S.) & THEODOR (O.). **Investigations on Mediterranean Kala Azar. VII. Further Observations on Canine Visceral Leishmaniasis. VIII. Further Observations on Mediterranean Sandflies. IX. Feeding Experiments with *Phlebotomus perniciosus* and Other Species on Animals infected with *Leishmania infantum*. X. A Note on *Trypanosoma platydactyli* and *Leishmania tarentolae*.** —*Proc. Roy. Soc.* Ser. B. 1935. Feb. 1. Vol. 116. No. 801. pp. 494–504. With 8 figs. on 2 plates; 505–515. With 2 figs.; 516–542; 543–544.

In these articles the authors continue the account of observations made during the investigation of Mediterranean kala azar in Malta and Catania (see this *Bulletin*, Vol. 29, p. 872).

VII. On the subject of canine visceral leishmaniasis it is noted that heavily infected animals may appear to be quite healthy. Infection of the unbroken skin is present in all naturally infected animals and that this is not due to a cutaneous infection in the first place is proved by the fact that it occurs in dogs infected experimentally by intrahepatic inoculation. Parasites occur in most of the organs and tissues of the body including the urethra, vagina, nasal and buccal mucosa, pharynx, tongue and intestine. The only factor common to all fatal infections was infiltration of the intestinal mucosa and submucosa with infected macrophages. It seems that the intestinal changes resulting from this infiltration are responsible for the emaciation which precedes death in fatal uncomplicated cases. Though infection of the eyes, mouth, nasal mucosa and urinary passages render possible escape of parasites from the body in the discharges this is of no importance for the spread of the disease. The infection rate in sandflies fed on infected dogs varies directly with the intensity of the skin infection and reaches almost 100 per cent. when the skin infection is heavy. A feature of the skin infection is that whether intense or not it is uniformly distributed over the body and involves, with other parts, the nose, internal surface of the ear and less hairy regions of the abdomen, places on which sandflies feed readily. Infected macrophages are found in all tissues except the central nervous system, ovary and testes. This applies not only to dogs but also to Microtus, Citillus and Cricetus experimentally infected.

VIII. Of the sandflies in Malta there are six species (*P. perniciosus*, *P. papatasi*, *P. parroti*, *P. major*, *P. sergenti* and *P. macedonicus*). The first named is by far the commonest but it has attracted less attention than the second owing to its relative infrequency in dwellings in the day-time. It is an out-of-door species and though it enters houses freely, far more specimens are to be caught outside where it feeds on dogs and human beings. In Malta it appears at the beginning of May and begins to disappear at the beginning of November. Hibernation of larvae actually starts in August in spite of a mean temperature of 27°C. to 28°C. at which development occurs earlier in the year. It becomes more marked between September and November, all development ceasing at a temperature of 20°C. Occasional sandflies are seen in December owing to the fact that a few larvae do not hibernate even at low temperatures. It is this sandfly, *P. perniciosus*, which is concerned with the spread of human and canine kala azar. Some further observations were made on sandflies in Catania, it being noted that the prevalence of *P. perniciosus* was underestimated in 1930

because it was not then realized that at suitable times it was more readily captured out-of-doors than within houses. A short visit to Greece revealed five species in Kavallah (*P. papatasi*, *P. sergenti*, *P. major*, *P. macedonicus* and *P. perniciosus* var. *tobbi*) and five species in Athens (the three first of the above series and *P. parroti* and *P. minutus*). In Athens *P. major* is the probable vector of kala azar. A new record for Palestine is *P. macedonicus*, a sandfly of the *major* group from the valley of Jezreel where a few cases of infantile kala azar have been noted.

IX. The feeding experiments described concern chiefly *P. perniciosus* but a number of other sandflies were also used. The sandflies were fed mostly on experimentally infected animals (Chinese and Syrian hamsters, spermophiles and dogs) but a number of experiments were also made by feeding on naturally infected children and dogs. Of the animals used, the spermophile is the most susceptible, a skin infection being established as early as 15 days after inoculation. The general result of the feeding experiments with *P. perniciosus* has shown that the distribution of the flagellates in the individuals of any batch of sandflies fed on an animal is subject to considerable variation, while there is a distinct difference in the behaviour of Maltese and Catanian strains of *Leishmania infantum*. The Maltese strain produces a large percentage of purely stomach infections during the greater part of the sandfly season, while the Catanian strain in most cases invades the anterior part of the cardia. In the case of the Maltese strain the infections in the sandflies become anterior towards the end of the sandfly season. Infections of the proboscis are rare with both strains but those that do occur are found mostly towards the end of the season and consist of short forms of the flagellate. From this it is inferred that infections of children occur in nature to a large extent at this season. This view receives support from the fact that at least half the cases in Catania are diagnosed from the end of April to the middle of July or six to eight months after the end of the sandfly season.

It was shown that inoculation into the skin of hamsters and spermophiles of flagellates removed by dissection from sandflies gave rise to infections. It was also demonstrated that heavily infected sandflies, if they had proboscis infections, passed flagellates into liquid in capillary tubes in which they were made to feed by the Hertig technique. In one case flagellates obtained in this way were inoculated intracutaneously to a spermophile which became infected. This was the nearest approach to the production of infection by the bite of a sandfly. It is recorded that of 150 *P. perniciosus* collected in a dog-house in Malta 4 were found naturally infected, a result which is not surprising in view of the fact that 11 per cent. of Maltese dogs are infected with *Leishmania infantum*.

A number of other feeding experiments were carried out showing that the infection rate in *P. major* is higher than in *P. perniciosus*. The latter sandfly, besides being infected by feeding on the animals, was also infected by feeding directly on cases of infantile kala azar. Other species of the major group (*P. major* var. *syriacus*, *P. perniciosus* var. *tobbi* and *P. chinensis* var.) were also infected from animals as also were *P. papatasi* and *P. sergenti* by feeding on very intensely infected animals. A number of sandflies (*P. perniciosus*, *P. perniciosus* var. *tobbi*, *P. major* var. *syriacus*, *P. chinensis* var. and *P. macedonicus*) were infected with an Indian strain of *L. donovani* by feeding them on inoculated hamsters.

X. An account is given of certain experiments with Maltese geckos infected with *Trypanosoma platydactyli* and *Leishmania tarentolae*. It was shown that the trypanosome infection in the geckos, which has usually been demonstrated by culture of the heart blood, can more readily be detected by feeding sandflies (*P. parroti* or *P. papatasi*) on them. An infection in the sandflies can be detected in three days. Of 43 *P. parroti* which fed on nine geckos infected with the trypanosome 40 became infected. The infection is an anterior one, flagellates occurring as far forwards as the oesophagus. No instance of hindgut infection was noted. One uninfected gecko appeared to have acquired a trypanosome infection by eating an infected sandfly which was being fed on it. Another gecko had both the trypanosome and leishmania infection, which in *P. parroti* produced a double infection of the two flagellates, both in the anterior position. *C. M. W.*

ROTTER (Werner) & CHAVARRÍA (Peña). Die Hautleishmaniose in Costa Rica. [**Dermal Leishmaniasis in Costa Rica.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1935. Mar. Vol. 39. No. 3. pp. 89–99. With 12 figs.

The authors give an account of 50 cases of cutaneous leishmaniasis which they have seen in 4 years at the hospital at San José. This number of cases is an indication that the disease is fairly wide spread in the country.

The lesions assume various forms—ulcerating, non-ulcerating, nodular, verrucose—while a small percentage of the cases show lesions of the mucosae. The disease as regards severity appears to occupy a position intermediate between the oriental sore of the old world and the more serious muco-cutaneous condition met with in S. America. The paper is illustrated by a series of excellent photographs.

C. M. W.

WARMA (J. D.). **Further Observations on the Treatment of Oriental Sore.**—*Indian Med. Gaz.* 1934. Nov. Vol. 69. No. 11. pp. 616–620.

In a previous paper (this *Bulletin*, Vol. 29, p. 118) the author wrote of his experience in the treatment of oriental sore by local injection of berberine sulphate solution. With further experience he advocates the administration, in addition to the berberine sulphate treatment, of a vaccine prepared from cultures of the causative organism. This vaccine given at intervals of 4 to 7 days will itself bring about a cure of the sore in many cases, a feature which makes it very useful for the treatment of sores in places, such as the eyelid, where local interference is hardly possible. The maximum amount of berberine sulphate which can be injected at one sitting is about two-thirds of a grain or 4 cc. of a 1·0 per cent. solution. *C. M. W.*

SINCKE (G. E.). Zwei erfolgreich mit dem kombinierten Arsen-Antimonpräparat Sdt 386 B behandelte Fälle von Hautleishmaniose. [**Two Cases of Dermal Leishmaniasis, treated with an Arsenic-Antimony Compound.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1935. Feb. Vol. 39. No. 2. pp. 63–68. With 6 figs. [12 refs.]

In two cases of cutaneous leishmaniasis, one from Peru and the other from Baghdad, the author has obtained a cure by the intravenous use

of the arsenic-antimony compound mentioned in the title. Injections of 0·3 gm. of the drug were given every 4 or 5 days and were followed by rapid disappearance of acute inflammatory symptoms and gradual resolution of the sores, which was complete after 10 doses had been administered. The treatment did not give rise to unpleasant reactions.

C. M. W.

KRISHNAN (K. V.). **Factors concerned in the Causation of Dermal Leishmaniasis.**—*Calcutta Med. Jl.* 1934. Nov. Vol. 29. No. 5. pp. 205–214. [13 refs.]

It is well known that cases of kala azar in India which have apparently been cured by specific treatment may later develop a condition of dermal leishmaniasis. In some cases the skin condition is seen in individuals from kala azar districts who give no history of having had the disease. The disappearance of parasites from the internal organs as a result of treatment and their subsequent development in the skin is a phenomenon which has never properly been explained. The author discusses the problem from various points of view and reaches the conclusion that the immunity of the host has something to do with it, though he has not found it possible to explain precisely how this comes about. *C. M. W.*

DE (Manindra Nath) & CHATTERJEE (Krishnadhan). **An Interesting Case of Dermal Leishmanoid.**—*Calcutta Med. Jl.* 1934. Nov. Vol. 29. No. 5. pp. 237–240. With 4 figs. on 2 plates.

A record of two cases of cutaneous leishmaniasis in brothers both of whom had suffered from and had been treated for kala azar 2 years before the appearance of the skin condition. The case of one of the brothers is described in some detail with illustrations which show how readily a diagnosis of nodular leprosy can be made, as was done in this case. *C. M. W.*

MIHĂILESCU (M.) & NICOLOFF (D.). Două cazuri de leishmanioză spontană în România la câine. [**Two Cases of Canine K.A. in Rumania.**]—*Arhiva Vet.* 1934. Vol. 26. No. 1–2. pp. 43–53. With 7 figs. [13 refs.]

The paper describes two cases of canine kala azar from Rumania, presumably in Bucharest, where infantile kala azar was first noted by Professor MANICATIDE in 1912. Two figures illustrate elongate structures found in blood films. Though these are compared with herpetomonas, they bear no resemblance to this flagellate, so that neither they nor the two figures, which are presumably intended to show leishmania in spleen smears, help one to the conviction that the dogs were actually suffering from the disease diagnosed. *C. M. W.*

AUGIER (Pierre) & FAURE-BRAC. La reviviscence transitoire des lésions cutanées au cours du traitement de la leishmaniose canine par l'antimoine. [**Lighting up of Skin Lesions in Treatment of Canine K.A. by Antimony.**]—*C. R. Soc. Biol.* 1935. Vol. 118. No. 14. pp. 1432–1434.

It is well known that skin lesions of various kinds occur as complications of kala azar in dogs. The author has noted that about 8 to 10

days after the commencement of treatment with organic antimony compounds these skin lesions in a number of cases become temporarily aggravated and he compares the phenomenon with the Herxheimer reaction in human beings. *C. M. W.*

DONATIEN (A.) & LESTOQUARD (F.). Investigación de la leishmaniosis canina por las reacciones serológicas. [**Serological Reactions in Canine K.A.**]—*Medicina Países Cálidos.* Madrid. 1934. Oct. Vol. 7. No. 10. pp. 486–487.

Writing of the serological reactions for the diagnosis of canine kala azar the authors point out that they consider the formol-gel test specific when gelification and opalescence occur within an hour. The turbidity produced by the addition of distilled water to the serum is also a valuable test. At the Pasteur Institute in Algiers for the past two years the two tests have been used simultaneously, not only for the diagnosis of canine kala azar but also for the purpose of controlling the treatment with organic compounds of antimony. *C. M. W.*

SINTON (J. A.) & SHORTT (H. E.). **Cutaneous Leishmaniasis as a Natural Infection of a Dog in India.**—*Indian Jl. Med. Res.* 1934. Oct. Vol. 22. No. 2. pp. 393–396.

A dog born and bred at Kasauli, India, was taken for a few months to Karnal in the Punjab. After returning to Kasauli, there developed on its nose a number of small nodules which, on examination, revealed leishmania. It seems practically certain that infection was acquired at Karnal where human cases of oriental sore are seen from time to time and where sandflies of various species abound. *C. M. W.*

KOPACZEWSKI (W.). Gélification sérique et espèce animale. [**Gelification of Serum and Animal Species.**]—*C. R. Soc. Biol.* 1935. Vol. 118. No. 4. pp. 339–341.

The addition of acid to serum will produce a gelification on standing but the extent to which this occurs with any one acid is not the same for the sera of man, horse, ox and pig. Furthermore, the acid which gives the most marked reaction with the serum of one animal is not necessarily that which will give the most marked reaction with that of another. In general the degree of gelification is dependent upon the globulin content of the serum and the buffer action this has towards the acids. *C. M. W.*

THEODOR (Oskar). **Observations on the Hibernation of** *Phlebotomus papatasii* (**Dipt.**).—*Bull. Entom. Res.* 1934. Dec. Vol. 25. Pt. 4. pp. 459–472. [12 refs.]

The larva of *Phlebotomus papatasi* passes the winter in hibernation in Palestine. Is this due to the influence of external conditions, especially low temperature, or are there cyclical factors which cause hibernation to occur even when the external conditions would not do so ?

As a preliminary to his studies the author standardized his methods of breeding and rearing, and describes a technique which nearly always gives consistent results. Much depends on preserving the necessary moisture in the food without allowing an excessive amount of water to be present. Using the methods described, the mean duration of the period from egg-laying to the emergence of the adult is 36–40 days at

30°C., and at least 75 per cent. of the eggs should produce flies. Under normal conditions it is the fourth larval stage which hibernates in Palestine, but if larvae in this state are disturbed, given food and put at 30°C., many of them will pupate though some cannot be re-activated.

In his experiments Theodor started with a culture which was isolated at the end of summer after four or five generations had been produced rapidly in nature. Some of the larvae developed without a pause, though the duration of larval life was a little longer than the normal, but others entered into a period of rest as large larvae, many of which pupated after an interval. Substantially the same results were obtained on several occasions during the winter. In the summer the proportion of larvae which rest is very much less, though the phenomenon is occasionally observed ; and the duration of the larval stage is shorter than in the winter at the same temperature. The author concludes that hibernation depends principally upon climatic factors, of which it seems probable that temperature is the effective one, but there is some " cyclical " factor which operates in winter. Theodor's observations therefore support those of ROUBAUD, whose theoretical views about the " intoxication of the egg " and other matters remain in the realm of hypothesis. *P. A. Buxton.*

SAINTE-MARIE (Flye). Un cas de leishmaniose viscérale infantile marocaine. Efficacité remarquable du traitement stibié. [**Case of K.A. in a Moroccan Child.**]—*Bull. Soc. Path. Exot.* 1935. Mar. 13. Vol. 28. No. 3. pp. 183–187. With 1 chart.

The paper records a case of kala azar in a child 5 years of age from Zaouïa, Morocco. A visit to the locality did not reveal any other human cases but two dogs were found infected, one from the home of the child.

C. M. W.

MERKLEN (Pr.) & ISRAËL (L.). Un cas de kala-azar chinois ; leishmanioses cutanées de formes variées. [**Case of K.A. in a Chinese.**]—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1935. Mar. 11. 51st Year. 3rd Ser. No. 8. pp. 352–358.

The case described is that of a man 33 years of age, who contracted kala azar during military service in North China. The diagnosis was made and the treatment carried out at Strasbourg. *C. M. W.*

DECOURT (Jacques) & ARIÈS (Ch.). Sur un cas de kala-azar observé à Paris chez une adulte et rapidement guéri par la stibiothérapie. [**Cases of K.A. seen in Paris.**]—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1935. Feb. 25. 51st Year. 3rd Ser. No. 6. pp. 272–279. With 4 charts.

BENARD (René), POUMAILLOUX (M.) & BRINCOURT (J.). Un cas parisien de kala-azar traité par l'uréastibamine.—*Ibid.* pp. 262–272. With 3 figs.

FIESSINGER (Noël). A propos de la communication sur le kala-azar de René Bénard, M. Poumailloux et J. Brincourt.—*Ibid.* pp. 293–297.

These papers refer to two cases of kala azar in women, 17 and 42 years of age. Though the illness was in each case first noted in Paris, visits to the South of France render it probable that infection took place there.

C. M. W.

MacLeod (J. M. H.). **The Lupoid Variety of Cutaneous Leishmaniasis.**—*Jl. Trop. Med. & Hyg.* 1934. Dec. 1. Vol. 37. No. 23. pp. 358–359.

The case described is that of an English woman who, during residence in India, developed a slightly raised, yellowish brown patch over the left malar bone. Owing to its resemblance to a tuberculous lesion, it was excised. Examined microscopically it did not show the characteristic structure of lupus, but revealed a leishmania infection. *C. M. W.*

Ginandes (George J.). **Kala-Azar in Children.**—*Amer. Jl. Dis. Children.* 1934. Dec. Vol. 48. No. 6. pp. 1336–1366. With 5 figs. [68 refs.]

The description of a case of kala azar in a Greek child, who had come to the United States 14 months before admission to hospital, together with reference to three previously reported cases in children from European endemic centres and some general remarks on the disease. *C. M. W.*

Bogliolo (Luigi). Studî sulle leishmaniosi. Prime ricerche ed osservazioni sui flebotomi della Sardegna *Phl. parroti* var. *sardous*, var. n. [**Leishmaniasis in Sardinia.**]—*Ann. d'Igiene.* 1935. Jan. Vol. 45. No. 1. pp. 41–47. With 9 figs. & 1 map.

The paper records the discovery in Sardinia of a sandfly which the author considers to be a new variety of *Phlebotomus parroti*. *C. M. W.*

d'Oelsnitz, Bonnet (G.) & Raybaut (A.). Observation d'un adolescent atteint de kala-azar et porteur de volumineuses adénites épitrochléennes. [**Case of K.A. in Adolescent with Large Epitrochlear Glands.**]—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1935. Jan. 28. 51st Year. 3rd Ser. No. 2. pp. 70–72.

The case described is of interest in that it is another instance of the occurrence of kala azar in adults in the South of France where the disease is now fairly common in children. Special attention is called to the enlargement of the epitrochlear lymphatic glands in this case, a feature which the authors have noted in other cases of the disease. *C. M. W.*

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d'Oelsnitz (M.), Galavielle (R.) & Raybaut (A.). Kala-azar autochtone chez un jeune soldat. Stibio-résistance. Guérison par un traitement stibié intensif.—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1935. Mar. 18. 51st Year. 3rd Ser. No. 9. pp. 428–432.

Rathery (F.), Dérot (M.) & Conte (M.). Un cas de kala-azar chronique de l'adulte.—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1935. Mar. 4. 51st Year. 3rd Ser. No. 7. pp. 334–338.

HEAT STROKE.

McMillan (J. S.). **Résumé of an Analysis of "Effects of Heat" Case Sheets for 1932.**—*Jl. Roy. Army Med. Corps.* 1934. Feb. Vol. 62. No. 2. pp. 129–132.

The author divides his 185 cases into four clinical groups. (1) Cases with no pyrexia. Ninety-one cases. Deaths nil. (2) Cases with moderate pyrexia throughout. Fifty-three cases. Deaths nil. Pyrexia ranged from 99·6°F. to 104°F. (3) Cases at first apyrexial which after a definite illness developed pyrexia. Sixteen cases. Nine deaths. (4) Cases with early hyperpyrexia. Twenty-five cases. Two deaths.

The importance of group 3 is stressed. In these cases, constant and distressing vomiting was a striking and almost constant feature during the apyrexial period, and the nervous symptoms exhibited at this stage were suggestive of further trouble to come. The patients were very dull, or very irritable and restless. Many were disrespectful or even insubordinate, and showed a mental attitude quite different from their normal. The length of time from the beginning of the attack until the onset of pyrexia was of help in arriving at a prognosis, for the longer the afebrile period lasted, the worse was the outlook. This group, as shown above, included most of the fatalities.

W. P. MacArthur.

Schofield (Richard O.). **Heat Prostration—its Treatment at Boulder Dam.**—*California & Western Med.* 1934. Aug. Vol. 41. No. 2. pp. 83–85.

An account of the body reactions to high temperatures in the presence of low humidity, as seen in California.

The summer of 1933 presented in Boulder City a daily average maximum temperature of 112°F. and a daily mean average temperature of 104°. Workmen were urged to drink large quantities of water, and to take in addition not less than one teaspoonful of salt daily. To this prophylactic measure is attributed in large degree the diminished incidence of heat exhaustion—in which term both thermic fever and heat syncope are included—as compared with the hot summer of 1931. In addition to continued application of warmth, or cold, according to the type of the attack, treatment consisted in giving normal saline in 7½ per cent. glucose intravenously, and normal saline subcutaneously. The results of treatment by saline injections are described as very satisfactory, and some of the speakers who took part in a discussion on the subject of the paper regarded this therapeutic measure as a specific. *W. P. M.*

Dreosti (A. O.). **The Prevention of Heat Stroke on the Mines of the Witwatersrand.**—*Proc. Transvaal Mine Med. Officers' Assoc.* 1934. Jan. & Feb. Vol. 13. Nos. 149 & 150. pp. 32–37. [32 refs.]

The author describes the classification of newly recruited native miners by the heat-chamber test, and their subsequent acclimatization.

The heat-chamber, which is a hospital annex, measures 50 feet by 25, and operates at a temperature of 98°F. in an atmosphere kept saturated by water atomizers, the conditions thus being more trying than those generally encountered underground. Each miner's temperature is recorded before he enters the chamber, after half-an-hour, and again at the conclusion of the test, which lasts for an hour. The experimental work consists in lashing rock from one to another of a series of troughs in the cement floor of the chamber, and the men are made to work at a rate at least as fast as that necessary in a mine. On completion of the test the men are graded as (*a*) Tolerant to heat, (*b*) Less tolerant, (*c*) Intolerant, in accordance with the degree of febrile reaction shown. These groups are then subjected to 4, 7 and 14 days' acclimatization, respectively, carried out below ground under the supervision of mine officials. After completing the allotted acclimatization period of reduced work, the men are issued with red armlets which are worn for a further period of from 7 to 14 days, according to grade. The badge indicates that the wearer is a recruit, and is not to be overworked in any way. At the end of the red-armlet period, the miner is considered acclimatized and is expected to do ordinary work.

During the two years that the heat-chamber has been in use, 10,000 men have been tested ; in all, only 8 cases of heat stroke have occurred, and none of these in the groups classified as heat-tolerant.

W. P. M.

BROWN (Earle G.). **Deaths from Excessive Heat in Kansas, 1934.** —*Public Health Rep.* 1935. Apr. 19. Vol. 50. No. 16. pp. 546–548. With 1 fig.

The abnormally warm summer of 1934 was responsible for 291 deaths from excessive heat in the State of Kansas, this figure exceeding by about four times the highest previously recorded in the State. It is pointed out that the number of deaths from heat in 1934 was surpassed only by that due to motor car accidents and accidental falls in the group attributed to external violence.

The employment of a special report form supplemental to the death certificate provided the authorities with a considerable body of data regarding the fatal seizures. Two waves of mortality were recorded with the peaks occurring in July and August respectively, and in both months the bulk of the deaths followed on a number of days of exceptionally high temperature which varied between 106°F. and 110°F. It is interesting that throughout this period the relative humidity was abnormally low.

The proportion of the State population resident in towns of over 2,500 inhabitants is 30 per cent., and nearly half of the deaths were among town dwellers. The great majority of heat fatalities—249—occurred in persons at home, and only 27 were classed as industrial, of which agriculture gave 15. Of the 15 fatal seizures in public places, 4 occurred in persons driving in motor cars on the highway. As would be expected, the mortality fell most heavily on the older people and of the total deaths 73 per cent. were in persons of 65 years or over. But the young were not immune, and there were 14 deaths in infants aged less than one year. *W. P. M.*

CHUN (J. W. H.). **An Analysis of 37 Heat Stroke Cases.**—*Reports National Quarantine Service.* Shanghai, China. 1934. Ser. 5. pp. 81–87. With 1 chart.

This paper records a series of 37 cases of heat stroke admitted to the Chinese Infectious Diseases Hospital, Shanghai, in 1934. The summer there, as elsewhere, was exceptionally hot, and for a period of 26 days the mean daily temperature was approximately 10°F. above the average, while the daily wet bulb temperature exceeded 80°F. During this time, the curve of the incidence of heat stroke cases closely followed the temperature curve. The commonest presenting symptom was hyperpyrexia, 27 per cent. of patients having a temperature of 107°F., and in one instance 109°F. was reached. Next in order of frequency came unconsciousness, cramp, diarrhoea, dyspnoea, and cyanosis. Over 35 per cent. of the cases ended fatally. The treatment followed recognized lines. *W. P. M.*

CLIMATIC BUBO.

RAJAM (R. V.). **A Clinical Study of Climatic Bubo and Allied Conditions.**—*Indian Med. Gaz.* 1934. Oct. Vol. 69. No. 10. pp. 546–554. With 3 figs.

A review of 183 cases of poradenitic infections coming under observation at the venereal clinic Madras General Hospital in the year 1933.

The distribution of cases was as follows :—

Climatic Bubo.

		Males	Females
Climatic bubo only		99	2
Climatic bubo with other venereal diseases		51	1
with active syphilis	6		
with latent syphilis	6 (1 female)		
with positive strong Wassermann reaction in which there was no history or clinical evidence of syphilis	14		
with positive Wassermann reaction in which there was no history or clinical evidence of syphilis ...	10		
with gonorrhoea	5		
with gonorrhoea and active syphilis	2		
with chancroid	8		
with infective granuloma	1		
Genito-anorectal syndrome of the same aetiology ...		18	8
Elephantiasis vulva with or without ulceration ...		—	4
		168	15

Of the males 130 were Hindus, 13 Mohammedans, 3 Indian Christians, 3 Anglo-Indians, 1 European. The females were all Hindus. Among the cases of climatic bubo 120 were unilateral—right 64, left 56; bilateral 27. In 45 cases the iliac glands were also enlarged. Only one acutely toxic case was seen. Enlargement of the spleen never noticed. A certain number of cases showed a positive W.R. in the early stage in the absence of evidence of syphilis. Frei's test was found to show a high degree of specificity. It was positive in 21 cases exhibiting the "genito-ano-rectal" syndrome and in 4 cases of esthiomène. In 2 of the males suffering from the G.A.R. syndrome the test was negative. Many of the male cases appeared to have developed following the removal of poradenitic inguinal glands. This syndrome occurred in a total of 18 males, 16 to 55 years of age, and included 6 professional passive sodomists: in 8 females, 15 to 32 years of age, and included 5 prostitutes. The stricture of the rectum, discovered in many, had the characters which should now be well recognized.

Aspiration of softened glands combined with 6 injections of milk intramuscularly or dmelcos vaccine on alternate days followed by a course of fouadin to a total of 50–60 cc. of the solution has yielded the best results. Coexisting other venereal disease was not uncommon and must receive appropriate treatment. This paper forms a valuable contribution to the subject, the histories of the cases are good and the relationship of the poradenitis to other manifestations of this virus infection is well illustrated. *H. S. Stannus.*

CHESTERMAN (Clément C.). Poradéno-lymphitis ou sixième maladie vénérienne au Congo Belge. [**Poradeno-Lymphitis or Sixth Venereal Disease in the Belgian Congo.**]—*Ann. Soc. Belge de Méd. Trop.* 1934. Dec. 31. Vol. 14. No. 4. pp. 413–420. With 2 figs. [Summary appears also in *Bulletin of Hygiene.*]

The author describes a number of cases of lymphogranuloma inguinale and of esthiomène in patients from the district between Stanleyville and Basoko (Belgian Congo) who were dealt with at the Baptist Mission at Yakusu. Such cases had been seen since 1920 but their true nature was not suspected until the author's attention had been directed to the possibility of their being L.I. by STANNUS's writings on the subject. The author mentions that he has also seen "the fourth venereal" disease caused by the organisms of Vincent's angina, but not the fifth or "granuloma venereum." He gives case notes of twelve cases proved to be L.I. by Frei's skin test, for which the antigen was made locally. Amongst the cases were six with some degree of stricture of the rectum. The author comments on the comparative intractability of the condition in women.

L. W. Harrison.

MASSIAS (C.). Maladie de Nicolas-Favre en Cochinchine. [**N.F. Disease in Cochin-China.**]—*Bull. Soc. Path. Exot.* 1934. June 13. Vol. 27. No. 6. pp. 540–544. [11 refs.]

Some short notes of six male cases of inguinal adenitis seen at Soetrang which the author places under the denomination "maladie de Nicolas-Favre." They are, however, no more than clinical cases of climatic bubo without any proof as to their nature. A number of cases presenting lesions in and about the genito-ano-rectal area were also seen. These are very suggestive of poradenolymphitic infections but no tests were made. *H. S. S.*

HAUSER (Walter). Die Behandlung der klimatischen Bubonen mit Pyrifer. [**Treatment of C.B. with Pyrifer.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1935. Feb. Vol. 39. No. 2. pp. 68–70.

The author gives the results obtained by treatment with pyrifer in 25 cases.* A course consists usually of 5 to 9 injections at 3 to 5 day intervals. In approximately half the cases good results were seen. In 8 of them retrogression took place without fistula formation, in 4 incision was necessary. The treatment needed 17 to 119 days, *i.e.*, a shorter duration the author thinks than by other methods. In some cases rigors accompanied the rise in temperature; in one case treatment with pyrifer had to be discontinued on account of collapse produced. *H. S. S.*

PRYN (R. H. C.). **Climatic Bubo and its Treatment.**—*Jl. Roy. Army Med. Corps.* 1934. Oct. Vol. 63. No. 4. pp. 254–257.

Some notes upon cases of C.B. treated in China and India. In early cases preference is given to protein shock therapy (T.A.B.

* The *Medical Annual*, 1932, states that :—"Pyrifer is a suspension of non-pathogenic organisms sold in strengths varying from 50 to 5,000 millions per cubic centimetre."

vaccine intravenously) and aspiration. In cases in which incision is necessary or sinus formation has occurred he advocates packing with B.I.P.P. The author states that he has had no experience with more recent methods and there is nothing new in this article. *H. S. S.*

LEVADITI (C.) & LEVADITI (Jean). Certaines formes de tabès sont-elles dues au virus de la maladie de Nicolas et Favre (lymphogranulomatose inguinale) ? [**Are Certain Forms of Tabes due to the Virus of L.I.?**]—*Bull. Acad. Méd.* 1934. June 12. 98th Year. 3rd Ser. Vol. 111. No. 22. pp. 796–896. With 9 figs. [10 refs.]

The authors recite the results of experimental work devised to test the thesis put forward by JONESCO-MIHAESTI and his colleagues that the virus of L.I. injected intraperitoneally tends to localize itself in the central nervous system with the production of changes resembling those in tabes dorsalis.

In their two monkeys so inoculated while the virus could be shown to be present in the liver, spleen, glands and bone marrow, the central and peripheral nervous system remained intact. It is believed that the changes in the nervous system described by the Rumanian workers were not due to the introduction of the virus of L.I. but to some other cause, this idea being borne out by the fact that such changes had been found in non-inoculated captive monkeys. *H. S. S.*

MISCELLANEOUS.

TROWELL (H. C.). **The Medical Training of Africans.**—*East African Med. Jl.* 1935. Feb. Vol. 11. No. 11. pp. 338–353. [41 refs.]

The author notes that there is much diversity in the systems of training in the territories of East Africa, but all are built up on the belief that the bulk of the medical work will ultimately be performed by natives. He is concerned with training in Kenya. He discusses the conditions which govern training; these depend on the "health scheme," the degree to which Africans can be trained, and the money and personnel available.

He gives an account of the work of GORDON, VINT and others on the mental capacity of the African, with respect to his ability to profit by an advanced course of instruction and compares the findings in East Africa with those of American investigators; the conclusions of these are shown to differ.

Under aims and methods of training he describes the various types of training, of dressers, hospital assistants and health workers. Some dressers have proved competent to perform much of the nursing care of patients, but the best require frequent supervision and their knowledge is limited. The hospital assistant is trained in the wards of the native hospital to become in time a competent nursing orderly; the course lasts five years. Health workers have been trained since 1932 at the Jeanes School, Kabete, the original design being that in the morning they should act as dispensary dressers and in the afternoon as district health workers. This for reasons which are stated* did not work and they are now trained purely in preventive medicine and made responsible to the sanitary inspector.

The author then considers the obstacles which bar progress, those of language, philosophy and character.

The lingua franca, Swahili, is foreign to both teachers and taught, and both have but a defective knowledge of it so that it is impossible to convey anything but the most simple ideas. Between the culture and philosophy of the primitive African and that of the twentieth century there is a great gulf.

"The African child is reared in a culture so totally different that it is difficult to conceive of it. He does not move in a world of cause and effect explained in scientific laws, a world whose history is known, whose evolution is gradual, where at the moment the ideals of Humanism supplement the strong edifice of materialism. The African child is reared in a world where ghosts are more real than men, a world in the control of the spirits of the dead. Magical conceptions and magical causation are the only facts of his philosophy. The pleasure or anger of the spirits are the cause of all disease, famine, death, and the whole range of natural science. That being so, to discuss any phenomenon in terms of observation and deduction, is to follow a path of thought which to their minds can only be

* When the author writes—"It is feared that in certain cases he [the health worker] merely made a noise like a sanitary inspector on his way home"—one wonders whether he was shooing the rats or propitiating the spirits of which he lives in dread.

described as insane. The world is full of dreadful forces, the spirits are lurking everywhere, one's attitude to all phenomena is not one of curiosity, observation and deduction, the answer can never lie that way. For the seen is never explained by the seen, always by the unseen. . . .

"If he ever really understands that it is absolutely necessary to weigh and measure the medicine because the effect is proportional to the cause, he must abandon the idea around which his life has previously revolved, that medicine works by reason of some magical power that bears no relationship to its weight or volume."

Finally practically all the failures that have occurred during or after training have been due to want of character. [A lack so well known that this statement requires no elaboration.] *A. G. B.*

CONGO BELGE. Fonds Reine Elisabeth pour l'Assistance Médicale aux Indigènes du Congo Belge. Rapport annuel 1933. [**The Activities of Foreami in Belgian Congo in 1933.**]—65 pp. With 3 folding maps. Bruxelles: 9a Rue des Petits-Carmes. [Abridged summary appears in *Bulletin of Hygiene.*]

This is the third report of the foundation named Foreami (*F*onds *R*eine *E*lisabeth pour l'*A*ssistance *M*edicale aux *I*ndigènes Congo Belge). The first and second were reviewed in this *Bulletin*, Vol. 30, p. 569, and Vol. 31, p. 735 [see also p. 326], where some details were given of the genesis of the Institute and of its funds. The present report consists of a preface, a report by Dr. DUPUY, Director of the Sector Bas-Congo-Kwango and another by Dr. PRATI, in charge of the sleeping sickness campaign in Ruanda-Urundi. There are three good maps at the end of the brochure.

The program of Foreami envisages complete medical assistance to natives in rural areas in Belgian Congo. Its chief object is their increase and growth both qualitative and quantitative. It wages therefore a systematic war against morbidity and mortality and comprises the protection of the pregnant woman and young mothers, health education of the people, and preventive measures against endemic and epidemic disease. It visits and examines individually all the natives of a determined region, and seeks out and cares for all persons attacked by diseases which it has set out to combat. It studies also the native's habitat, applies the proper health measures strictly and advises and treats pregnant women and mothers as well as their babies. It is necessary, therefore, to visit every hamlet and village, hut by hut, to register each individual and to preserve medical files for each person and sanitary files for each locality. It provides rural dispensaries, consultations for the mothers and children and hospitals for those who are gravely sick. Such action could not be carried out at once all over this huge colony. It was decided to proceed by stages, to occupy one region for a sufficient time and then to move on to another. The District of Bas-Congo was the first selected, with Dr. DUPUY in charge, and it was divided into 8 subsectors, each under one or more doctors. The personnel of religious missions, professional and lay, as well as of commercial companies of the region was brought into the scheme. The area has now been extended to include part of Kwango, and it is expected that in the course of 1935 the whole of Kwango will be under Foreami and that Bas-Congo will revert to Government care.

	Number of natives	Expenditure
		Francs.
1931	384,799	2,386,617
1932	568,545	6,368,615
1933	634,068	9,772,298
1934 (est.)	770,000	10,894,395

[Ten million Belgian francs would in sterling amount to over £57,000.]

The table shows the progress of Foreami.

The foundation gives also an annual subsidy of 250,000 francs to fight sleeping sickness in the mandated territory of Ruanda-Urundi, 25,000 francs to the Red Cross at Leopoldville for anti-venereal measures there, and 175,000 francs to the Red Cross towards the cost of a research laboratory for leprosy in the Province of Stanleyville. The Administrative Council appeals to Belgians for donations and legacies to help on the work.

The area on which Dr. Dupuy reports extends roughly from the sea to the Kwango river and is larger than Belgium. His report (p. 11–61) is stuffed with figures ; it is not suitable for summary but some extracts may be given. He notes that sleeping sickness has regressed by half in two years. He refers to an experiment of two years' duration in which 4,000 babies received a daily dose of quinine with such encouraging results that it is to be extended to all the babies in the sector. He is aware of the objection of the loss of early immunity. A report on this experiment will be of much interest. He refers in two places to the difficulty of bringing medical care to scattered villages or hamlets and the need for regrouping them so as to permit of proper control. The extent of the sleeping sickness problem in the sectors may be gauged from the statement that 12,285 patients were treated in the year.

Under general mortality it is noted that among the 588,148 natives registered there were 13,669 deaths or 23·2 per mille. A table is given comparing the rate at various age periods with that of Europe, presumably Belgium.

	1 day to 3 years	3 to 15 years	15 to 45 years	45 years and over
In Africa p.m.	98·81	9·56	14·38	47·12
In Europe p.m.	49·16	2·216	5·48	36·65

The infant mortality is given as 17·5 per mille.

Dr. Prati's report is a short one and does not add much to that of the preceding year [see this *Bulletin*, Vol. 31, p. 736]. There were detected in 1933, 850 fresh sleeping sickness cases, an index of infection of 1·3 per cent. or, including old cases, 2·3. As before, the new cases are chiefly in the north, not near the Tanganyika border. The chief administrative measure is a regrouping of the population at a distance from tsetse-infested places. *A. G. B.*

CONGO BELGE. Rapport sur l'hygiène publique au Congo Belge pendant l'année 1933 [VAN HOOF (L.), le médecin en chef a.i.]. [**Report on Public Health in Belgian Congo, 1933.**]—60 mimeographed pp. With 2 maps & 2 charts.

[Belgian Congo comprises an area of 909,654 sq. miles and has a native population of 9,383,000, *i.e.*, it is 2½ times as large as Nigeria and has less than half the inhabitants.]

Though there was a diminution here as elsewhere of financial resources the medical effectives were fairly maintained in 1933. The figures of the staff are difficult to follow, but it appears that there were at least 10 medical directors, 6 bacteriologists, 6 sanitation officers, and 109 medical officers, and that the subordinate European staff numbered 151. Another table gives 143 doctors and 165 lay personnel. It seems that there is difficulty in recruiting young Belgian doctors, as well as men suitable for the senior and special posts, and that progress is thus held up.

Besides the Government doctors there were five Fomulac doctors [see this *Bulletin*, Vol. 28, p. 763], 3 Red Cross, 8 State missions, 25 foreign missions, 56 private or attached to commercial companies. The black personnel numbered 246. The available money, which amounted to 95 million francs in 1930, was in 1933, 68 millions, but an additional 9 millions was furnished by Foreami [see above] this does not include the mandated territory of Ruanda-Urundi.

The mortality figure for Europeans was 171, the lowest for 9 years, *i.e.*, 9·72 per mille (population 17,588) : births numbered 413. The proportion of women to men has been for the last three years 41 per cent. (missionaries excluded). Of the 171 deaths the causes of 108 were known : 12 were from malaria, 13 from blackwater fever. 55 Europeans were invalided, 14 for malaria and its sequelae. The natives treated in the year numbered 580,650, the largest on record, but sleeping sickness, yaws and leprosy are not included here, nor those treated in rural dispensaries. From the figures of Foreami in Bas-Congo the African mortality is put at about 23 per mille. Statistics are given for Leopoldville only :—

Year	Population	Births	Per 1,000	Deaths	Per 1,000	Excess	
						Births	Deaths
1929 ...	47,000	380	8·6	930	19·5	—	550
1930 ...	39,460	356	9·1	914	23·15	—	558
1931 ...	34,568	378	10·9	679	19·60	—	301
1932 ...	28,806	354	13·0	293	11·08	31	—
1933 ...	27,094	699	25·7	327	12·06	372	—

The number of natives treated in hospital in the colony was 51,117, also a record. Figures are given of natives treated by Government missions.

Epidemic Diseases.

Variola.—There were 3,088 cases, 3,075 of which were " alastrim " or variola minor : of 8 deaths 6 were due to variola major ; 283,000 natives were vaccinated with 73 per cent. of success.

Yellow Fever.—No cases reported this year. The result of mouse protection tests went to support the hypothesis of " an old endemic

disease of the Congo basin dating back 20 years, of slow advance and without dramatic expansion" [see this *Bulletin*, Vol. 31, p. 831].

Plague.—No case at the ports and only one in the Albert Lake district.

Typhoid.—Only 10 cases.

Bacillary Dysentery.—414 cases with 104 deaths were reported, an improvement on previous years attributed to prophylactic measures and especially vaccination.

Trachoma appears to be not infrequent in Upper Katanga. 449 cases were treated at Elisabethville.

Of *Undulant Fever* there were 3 suspected cases.

Infectious Jaundice.—In the preceding year there was a small epidemic in Europeans at Stanleyville [see this *Bulletin*, Vol. 31, p. 92], which laboratory examinations have since confirmed as Weil's disease. An epidemic of 614 cases in another part of the Congo was neither Weil's disease nor yellow fever.

Malaria.—1,230 cases and 8 deaths in Europeans. The incidence and fatality have varied little in 5 years. The disease was most prevalent in the Elisabethville Province. Many cases are of course not seen by doctors. *A. gambiae* is the chief vector. There were 55 cases of blackwater in Europeans with 9 deaths, against 72 and 19 in 1932; more than half occurred in the Leopoldville and Elisabethville provinces. The index of malarial infection in natives varied from 6 in schools where quinine was distributed to 80 per cent. No figures are given of microscopical diagnosis.

Trypanosomiasis.—Twelve European cases were detected in the year against 7 in 1932, 9 in the Leopoldville Province. No less than 3,572,423 natives were examined; 27,939 fresh cases were detected and 93,954 old cases were treated. The index of new infection was 0·78 per cent. (0·75 in 1932), varying between 0·16 per cent. in Stanleyville Province and 1·6 in Leopoldville Province. Over 96,000 old and new cases were treated by the Government missions. Since there is no increase of cases the situation is regarded as satisfactory. More and more cases are found to be resistant to the usual remedies, especially tryparsamide. It has therefore been decided to give higher doses than 2 gm. and to employ more than one drug. A hatched chart shows the percentage of infections in the various regions. Details of incidence are given for each Province, mission, etc.

Tuberculosis.—21 cases among Europeans; it is suggested that the medical examination undergone before admission to the Congo Belge should be more strict. In natives 817 cases and 360 deaths: the previous highest was 670 in 1931. A number of cases were also reported by the State missions and private doctors. In the Colony generally the disease increases in chronicity and the native race becomes more and more tuberculized.

Of *Pneumonia* there were 4,963 cases with 881 deaths, a fatality of 17·8 per cent.

Syphilis.—8,967 cases were reported in natives, of which 3,713 were primary (accidents primaires), 4,817 secondary and tertiary, 305 congenital and 132 nervous [a surprisingly large proportion of primary syphilis in natives].

Yaws.—42,260 cases were treated in natives and a larger number by missions and other bodies. Yaws is said to be regressing in areas where the medical occupation is "dense."

Leprosy.—Government doctors treated 3,331 cases.

Relapsing Fever.—224 cases in natives, chiefly in Leopoldville and Elisabethville Provinces; 12 cases in Europeans. *O. moubata* is more widespread than was believed. [From the mention of this tick it is inferred that the fever was tick-borne and not louse-borne.]

Endemic Goitre.—1,951 cases were treated, 1,514 in the Stanleyville Province: a number of other foci are mentioned.

Of *Amoebic Dysentery*, there were 63 cases in Europeans and 2,810 in natives; Mayumbe is an important focus.

Of *Ankylostomiasis* there were 24,047 cases.

Schistosomiasis.—15 cases of rectal schistosomiasis were treated in Europeans, 11 of them in the Costermansville Province. In natives there were 3,358 cases of schistosomiasis, chiefly from the Provinces of Stanleyville, Costermansville and Elisabethville. Details are given of the distribution of vesical schistosomiasis, which is more widespread than had been believed. The most important foci are in Elisabethville, where both forms are found.

Filariasis.—Information is given of the distribution of onchocerciasis, which depends on that of simulium.

Ulcerative Rectitis.—Two foci are known in the Provinces of Lusambo and Coquilhatville respectively.

Of *Tropical Ulcer*, 21,457 cases were treated.

A section follows on Medical Assistance to the Natives in which the activities of Foreami, private companies, the Red Cross, Fomulac [see this *Bulletin*, Vol. 28, p. 763], State missions, foreign missions, rural dispensaries, the hospital boat "Belgique" are described. Foreami is described elsewhere in this number (above). Details are given of the work of the rural dispensaries. Under the heading Protection of Native Children we learn that there are 118 infant welfare centres, usually organizations of religious missions, with an average attendance of 16,313.

Some figures are furnished for the schools of native *infirmiers* at Leopoldville, Coquilhatville, Elisabethville and Stanleyville. It appears that 22 passed the examination at the close of the 3rd year.

Under Hygiene of Towns and Stations it is pointed out that the diminution of population both European and native in conjunction with financial stringency has made the maintenance of hygienic services more difficult. At Stanleyville and Coquilhatville the *médecin hygiéniste* has given place to *agents sanitaires*, an effort to put this work on the *médecins des laboratoires* having been frustrated. The essential defence of the Colony, *i.e.*, the services at the ports, Leopoldville, Elisabethville and Albertville has been well maintained. Details are given of the principal places and it is noted that the Europeans of Boma have gone down from 682 in 1929 to 226 in 1933.

Under Industrial Hygiene the great reduction of workers is noted. In Leopoldville Province 10,598 were employed with a mortality of 4·7 per mille (7·2 in 1932): at the Kilo-Moto Mines 26,240 with mortality 4·5 per mille. In Elisabethville Province the effectives have fallen from 16,726 in 1928 (mortality 32 per mille) to 4,281 with mortality 7·01: here it is said that the workers were old boys of the company who were well acclimatized.

The Report closes with a number of tables. From two of them it appears that there are 331 hospital beds in the Colony for whites, and 3,867 for natives. *A. G. B.*

WAKIL (A. W.). **A Sanitary Review of the Egyptian Village. Its Present and Future.**—*Jl. Egyptian Med. Assoc.* 1934. Nov. Vol. 17. No. 11. pp. 872–885. With 4 figs.

A paper read at the Luxor Congress by the Asst. Professor of Hygiene, Cairo.

Twelve-and-a-half millions of the estimated population of Egypt (15,200,000) live in the villages, *i.e.*, 82·4 per cent. Of these 75 per cent. suffer from one form or other of schistosomiasis, and 50 per cent. from ankylostomiasis. In one district 40 per cent. of the inhabitants of many villages have oriental sores. Pellagra is common especially among children of 5–15 years ; it decreases as one goes south. Sufferers from tuberculosis have been estimated at 200,000 to 300,000, and cattle are infected in the proportion of some 40 per cent. ; fortunately boiling of milk is usual. Of 11,717 children examined by the Ophthalmic Section in 32 primary schools only 921, *i.e.*, 7·9 per cent., were found free from trachoma ; of patients seen at ophthalmic hospitals 8·4 per cent. are blind in one or both eyes, and in three-fourths of these conjunctival inflammation was the cause.

These are the endemic diseases, and epidemics of typhus, relapsing fever, plague, smallpox, cerebrospinal fever and measles are frequent. The death rate in Alexandria has fallen in thirty years from 33·7 to 26·3, but in the whole country it has hardly moved in this period; in the quinquennia 1901–5 and 1926–30 it was 25·3 and 25·8; improvement has occurred in the towns but not in the villages.

The poverty and ignorance of the fellaheen are measured by the fact that 72 per cent. of peasant males over 5 years of age possess no land, and only 13·7 per cent. can read and write. The insanitary state of the villages is described, and the houses shared by buffalo and donkey.

The author now turns to the future. He considers that the present Egyptian village is beyond redemption and must be replanned. A sufficient area of land must be obtained in its neighbourhood and new building prohibited in the old village ; animals would be stabled in their own sheds. He gives a plan of a one-storied house which he calculates would cost £75, the walls to be of burnt brick or masonry, limewashed and the floors cemented. Assuming that 2½ million houses are wanted, a rough estimate gives 200 million pounds as the sum needed for rehousing the Fellaheen. He suggests this might be spread over 50 years. Other problems are the provision of a pure water supply and conservancy. Of the possible sources of water, the Nile and deep wells, he prefers the Nile but the water must be sedimented, filtered and chlorinated. For reception of excreta he discusses the pail system and the concrete vault sanitary privy as used in Tennessee ; the bored hole latrine is unsuitable owing to the liability to overflow with the rise of the subsoil water.

Other suggestions for improvement are—the employment of sanitary inspectors instead of barbers to examine into deaths and vaccinate and for other usual purposes ; the employment of a health visitor for each village, who would replace the native midwife ; the provision of a small clinic where a doctor would attend once a week ; the provision of an elementary school for each village ; village councils to look to the village sanitation. *A. G. B.*

DREYFUSS (A.). Étude géographique et médicale de l'annexe de Laghouat. [**Geographical and Medical Study of the Annexe de Laghouat.**]—*Arch. Inst. Pasteur d'Algérie.* 1934. Dec. Vol. 12. No. 4. pp. 485–547. With 1 map & 12 figs. on 6 plates. [Refs. in footnotes.]

The Annexe of Laghouat lies due south of Algiers between 0·1 and 2·1° E. longitude and 32·9 and 34·5° N. latitude. The Annexe of Ghardaia, or Mzab country, lies immediately to the south. [For a similar account of this see above, p. 62.] Here are described the country, its inhabitants, products, native and European medical services, and diseases. The author has resided there from 1932 to 1934.

The country is mountainous in the north, reaching 1,400 metres, flat in the south, 700–800 metres: the town which is intermediate lies at 750 metres. The climate is hot in summer and cold in winter, frost being not very infrequent. The population is 21,962, formed of Arabs (about 21,000), Jews (500) and Negroes (200); the Europeans number about 600. The Arabs again are divided into the indigenous Berbers and the conquering Arab race.

European Medicine.—There are two military medical officers who look after the military hospital and the native infirmary, which is the finest in South Algeria: the patients seen here each month number between four and five thousand, women forming about half. *Eye Diseases* furnish more than half the complaints, in the summer especially acute conjunctivitis. Trachoma is common; of 632 children examined 422 were affected. The treatment consists chiefly in washes of sulphate of copper. *Syphilis* comes next. All the forms described as "Arab syphilis" are seen, and other more obscure forms the cause of which is revealed by serology. Interstitial keratitis is common. Primary lesions are seldom seen, but more than half the cases are congenital. The most used drug is acetylarsan. *Gonorrhoea* is frequent with its complications and sequelae, purulent conjunctivitis and arthralgia as well as vaginitis in small children; gonorrhoea is not regarded as a disease. After some remarks on *rickets*, which seemed to be considered here as of syphilitic origin, the author passes to *acute gastro-enteritis*; of 91 babies dying in 1933 in half this was the cause. *Acute respiratory infections* are common, attributed to scarcity of clothing in cold weather; this is the second cause of infant mortality. *Tuberculosis* is very common: one-third of hospital patients have either tuberculous glands, periostitis or osteitis, Pott's disease of the spine, or arthritis, peritonitis or pleurisy. Pulmonary tuberculosis is common: of 114 sputum examinations 30 showed *Myco. tuberculosis.* The tuberculin index based on 1,811 cutis reactions is one of the highest in the Sahara, 58 per cent., 49 for children up to 15, and 70 for adults. The cause seems to lie in the return home of old soldiers and sick labourers. B.C.G. is being administered in the Annexe.

Passing over a number of epidemic diseases we come to *malaria.* This does not now exist at Laghouat itself. Anopheles are not found and the splenic index in schools is nil; it is present however, in an outlying district, parasites having been found at the Pasteur Institute, Algiers, in blood from two persons who had never left the country. *Typhoid* has disappeared with the provision of a supply of potable water. *Typhus* has always been present; an epidemic in 1920 which followed a famine was deadly. Lice are so common that it is usual

for the doctor to find one on his clothing. At present the disease is not in evidence. *Oriental Sore* has several times been demonstrated; *P. papatasi* is found.

Flies are numerous in the summer and swarm on small children's eyes. The mosquitoes found are *Culex pipiens* and *Theobaldia longiareolata* and 7 species of Phlebotomus are reported. Scorpions and horned vipers have caused death in the Annexe but not in the author's experience. He has seen syphilitic hemiplegia and paraplegia but never tabes; he has also seen Parkinson's disease in two native shepherds.

Summing up, he points out that malaria, smallpox, typhoid and typhus, formerly prevalent, have disappeared, owing to measures carried out by the health and local authorities. The country is now healthy, but two scourges remain, tuberculosis and syphilis.

A. G. B.

FAST (Johann). Krankheitsbilder aus Java. [**Diseases seen in Java.**] —*Arch. f. Schiffs- u. Trop.-Hyg.* 1935. Mar. Vol. 39. No. 3. pp. 112–116.

The diseases discussed are (1) chronic ulcers, the result of tropical ulcer, yaws or syphilis. Persons with ulcers which would not heal were treated thus—The femoral artery was laid bare as in sympathectomy* for 10 cm. and painted with a 0·4 per cent. phenol solution. This was usually effective [presumably in leg ulcers] and became quite popular. Eventually no chronic ulcers were admitted to hospital unless consent was given to operation, which is described as amazingly effective. Other conditions described are (2) urethral stricture, very common; and (3) liver cirrhosis "after malaria," which begins with splenomegaly in childhood and goes on to ascites and anaemia; recovery is rare. The rest of the paper deals with complications of childbirth. *A. G. B.*

VAN DRIEL (B. M.). De sterfte der ondernemingsarbeiders in de Buitengewesten van Nederlandsch-Indië in 1931 en 1932. (**Death Rates and Causes of Death among 404,983 Estate Labourers in the "Outer Provinces" of the Netherlands East Indies in 1931 and among 313,790 Labourers in 1932.**)—*Meded. Path. Lab. t. Medan-Sumatra.* 1934. No. 14. 175 pp. With 11 figs. [59 refs.] English summary. [Summary appears also in *Bulletin of Hygiene.*]

This report follows the lines of previous issues (reviewed at length in the *Bulletin of Hygiene*, Vol. 6, p. 750; 871; Vol. 7, p. 559; Vol. 8, p. 403). For the East Coast of Sumatra and Atjeh, the corrected rates of mortality on male Javanese show an improvement; the rate in 1932 was the lowest since 1927, *viz.*, 5·80 per 1,000. The rates on Javanese women and on Chinese were lower than in 1931 but above the rates of 1927. Mortality from typhoid fever, malaria and dysentery decreased from 1930; the author attributes this rather to

* According to G. JEFFERSON (CHOYCE's System of Surgery, 3rd Edition, Vol. 3, p. 324) the operation of periarterial sympathectomy has been advocated by R. LERICHE for ulcers and other conditions for some years; it consists in stripping the sympathetic coat of the vessels at the root of the limbs. JEFFERSON says it is not founded on sound principles and will be abandoned. If, however, the operation is effective as appears to be the case (*C. R. Acad. Sci.* 1935. Vol. 200. p. 1156) it is perhaps the underlying theory that must be dropped.

a periodic movement, together with a lower rate of immigration, than to more specific factors. As usual, tuberculosis is the most important cause of mortality; this cause is responsible for about a quarter of the mortality of Javanese males and more than a third of the mortality of Chinese. On the whole, indeed, the mortality rate on Chinese is much higher than on Javanese (the respective rates per 1,000 were 11·94 and 5·8). There is only one important exception to the rule, *viz.*, cirrhosis of the liver, which affects the Javanese much more than the Chinese. The Javanese are total abstainers and suffer very rarely from syphilis. Details are given of the "outer provinces" exclusive of the East Coast of Sumatra and Atjeh because the occupational distribution is widely different; many are employed in mines. The results are similar to those found in South Africa. Thus tuberculosis and diseases of the respiratory system are now found to be more fatal among Javanese than among Chinese. The former are underground, the latter surface workers.

The author remarks that "it would be of much interest, of course, to compare our data with those obtained in other parts of the tropics. The difficulty is, that, as far as the present writer knows, there does not exist in any part of the tropics a statistical report on death rates and causes of death among labourers of the same bulk as ours."

[Discreditable as the fact may be to an even greater colonial power than the Netherlands, we fear it *is* a fact.] *M. Greenwood.*

REED (E. U.). **Medical Observations in the Tropics.**—*U.S. Nav. Med. Bull.* 1934. Oct. Vol. 32. No. 4. pp. 463–467.

The tropics in this instance are certain American-administered islands in the South Sea.

After some remarks on syphilis and yaws, which from his experience in Samoa, Haiti and Guam the author believes to be the same disease, he turns to the relative absence of gonorrhoea in these islands and the presence of conjunctivitis. No sailor contracted gonorrhoea or syphilis in American Samoa during his tour of duty nor did he see cases in the native hospital, but Samoan conjunctivitis, spread by contact and flies, was very prevalent: the causative organism is an intracellular, Gram-negative diplococcus "quite similar to the gonococcus." In 1923 HUNT reported that for two years there had been no severe epidemics of conjunctivitis, but gonorrhoea was "not uncommon." The author concludes:—

"It therefore seems reasonable to believe that these repeated attacks of Samoan conjunctivitis protected the Samoans against gonorrhoea of the genito-urinary tract until the recurring conjunctivitis attacks were greatly reduced in number and severity by treatment with the silver preparations."

[Further study of the organism of Samoan conjunctivitis would help to a decision whether these diseases are related or not. Gonorrhoea is rare also in some British possessions in the Pacific.] *A. G. B.*

HIYEDA (Kentaro). **Distribution of Parasites and Parasitic Diseases in Manchoukuo.**—*Jl. Oriental Med.* 1934. Oct. Vol. 21. No. 4. pp. 39–56. With 3 charts & 1 map. [47 refs.]

The author who is Professor of Pathology, Manchuria Medical College, gives a short account of the parasitic diseases of China in which is found the statement—"The Chinese in the epidemic area do

not consider kala azar a disease but a natural occurrence experienced by everybody."

The most important parasitic diseases in Manchukuo, he writes, are amoebic dysentery, kala azar, malaria and rickettsiasis. Little is known about *amoebic dysentery* here. In 1933 at the Mukden hospital, of 307 dysentery cases 105 were bacillary, 75 amoebic and 21 mixed. From 21 to 38 per cent. of Manchurian labourers are stated to be cyst carriers. The author thinks that nearly half the dysentery in Manchukuo is amoebic.

For *malaria* he gives figures from 15 stations for 6 years, but explains that these cases were in Japanese because the Manchurians do not come to hospital. He would expect the malarial incidence in Manchurians to be higher. In two stations, Fushun and Anshan, there has been a marked increase; in Fushun the result of imperfect drainage of extensive coal mines. The malaria is described as "tertian"; the carriers are *A. sinensis.*

Kala azar.—A map shows how widespread is this disease—"one of the most important endemic diseases in Manchukuo."

Of other intestinal protozoa *Entamoeba nana* is stated to be most common, averaging 41 per cent. Giardiasis is found in 25 per cent. of Manchurian school-children.

Of *helminthic diseases* ascariasis is widespread, ankylostomiasis is common in the southern parts and rare in the north. Since the Manchurians do not go bare-foot it is believed that oral infection is common. The infection is not regarded as grave. Trichuris is also common. *Clonorchis sinensis* was found only twice in Mukden but in 5 per cent. of stray dogs.

Investigation was made of the part played by vegetables in the spread of parasitic infections. Eggs of Ascaris and Trichuris were found. It was concluded that lettuces, which are not easily washed, are most dangerously contaminated. *A. G. B.*

CILENTO (R. W.). **Australia's Orientation.**—*Health Bull.* Melbourne. 1933. July–Dec. Nos. 35 & 36. pp. 1039–1066. With 6 figs. [17 refs.]

Australia's orientation in Dr. Cilento's view should be and will be to the north, or, as he puts it, from the sub-tropics to the tropics of that continent.

Dealing with the history of settlement in Australia he indicates the struggle between tradition and experience, tradition holding the settlers to the coast and enterprise and subsequent experience taking them inland to raise sheep and grow wheat; enterprises which, he shows, depend on rainfall as illustrated by the isohyetal lines given on his map. All the early colonization was in the south, and when the Australians expressed opinions adverse to the colonization of the north they overlooked the fact that southern Australia is really sub-tropical and not comparable with England. This is demonstrated by superposing the map of the country, latitude for latitude, on Europe and Africa, Asia and America in turn. Europe is touched at the Spanish peninsula but almost the whole of Australia lies on northern Africa. Similarly in Asia, China, Indo-China and Burma are covered, and in America, Mexico from Florida to Panama. "Latitude for latitude we find Australia superposed not upon Europe but upon northern Africa—upon south-eastern Asia—and upon Central America

and the hotter parts of the United States." One-third of Australia has a rainfall of less than 10 inches but practically all this arid area lies south of the tropic of Capricorn.

BARKLEY basing his estimates on the figures found west of the Mississippi anticipates for Australia a population of about 30 millions, of which 11·3 millions will occupy Queensland and 5 millions Western Australia; *i.e.*, a 13 and 14-fold increase in these States. The population of Queensland has increased in 87 years from 22,300 to nearly a million.

The author thinks that the development of Tropical Australia is inevitable, and again meets the objections raised on the head of "climate."

The actuarial opinion is cited, that there is no need for life assurance offices to treat proponents who live in N. Queensland differently from those who live in other parts of Australia. The Commonwealth statistician pointed out in 1927 that for 15 years the infant mortality for the whole country was 7 per cent. higher than that for Queensland. A table of the "average issue of wives resident in Australia at census of 1921" shows a higher figure for Queensland in each age group than for the whole of Australia. An examination of 2,080 N. Queensland children for height, weight, chest circumference, mentality and nutrition revealed no differences from southern children.

"The authenticated figures of the Commonwealth Statistician demonstrate quite conclusively that white men live and thrive within the tropical portion of Australia at any rate, and have done so for three generations; and that white women can, and do, accompany them without any loss of fertility, mentality, or physique. . . .

"The evidence from Queensland shows that there is nothing in climate to prevent the development of our tropical regions by white labour, and colonization is actually progressing there at present at a more rapid rate in some areas than in any other part of Australia. Where, in the more barren areas, there are drawbacks owing to remoteness of markets, poverty of soils, unsatisfactory distribution of seasonal rain, and lack of transport facilities, development must be slow and costly, but the introduction of coloured labour would offer no solution, and would multiply difficulties. . . ."

"The dense populations of Eastern Asia are a more valuable asset to Northern Australia as a market for produce than as a source of labour. . . ."

One more quotation—"Australia is really a tropical and sub-tropical land, cleverly coerced into the production of the products of temperate climates, free to a large extent from endemic diseases, and increasingly populated by a white race of high standards and culture, which, during three generations, has demonstrated its fitness for residence in the tropics. It seems to me that we may look forward with confidence to successes in the tropical North equal to those which have so transformed the sub-tropical South." *A. G. B.*

DIOS (R. L.), DE SOMMERVILLE (E. T. W.), BONACCI (H.), ALDAO (A.) & BARBA (R.). Paludismo y parásitos intestinales en el Territorio de Misiones. [**Malaria and Intestinal Parasitism in Misiones.**]—*Rev. Inst. Bacteriológ.* Buenos Aires. 1934. Nov. Vol. 6. No. 4. pp. 458–505. With 2 graphs, 2 maps & 9 coloured plates.

The territory of Misiones (Argentina) lies south-east of Paraguay. The authors examined a number of blood films for malaria parasites and faeces for helminthic or protozoal infestation. [Evaluation of the

results of the former is somewhat difficult for the figures vary; in one place it is stated that 4,959 specimens were examined, in another 5,489, and on this last the authors' percentages are based; in a detailed protocol of 20 localities the total examined is 4,985. As this is the most detailed we will adhere to it.] Of the 4,985 specimens 879 or 17·6 per cent. were positive; 710 contained *P. vivax, i.e.*, 80·7 per cent. of those positive, and 123 or 13·9 per cent. *P. falciparum*; there were 50, or 5·6 per cent., of mixed infections; quartan was not found at all [it will be noted that these total 883]. In the authors' protocol summing up the results there were 1,024 positive out of 5,489 or 18·6 per cent. and of these 786 (76·7 per cent. of the positive) were benign tertian, 174 (17 per cent.) subtertian and 64 (6·2) mixed.

As regards the second part of this article, the number of faecal specimens examined is not stated, but 166 were found positive. In a more detailed table 11 districts are mentioned and the *percentage* findings of helminthic ova, alone and combined, are given. Protozoal findings comprised only *E. coli* and *Giardia lamblia*. The percentage figures alone, based on so small a number, conveys little information of value. *H. H. S.*

CLARK (Herbert C.). **The Gorgas Memorial Laboratory and Problems engaging its Attention.**—*Trans. College of Physicians of Philadelphia.* 1934. Vol. 2. No. 2. 4th Ser. pp. 140–149. [19 refs.]

The Gorgas Memorial Laboratory is the tropical subdivision of the Gorgas Memorial Institute, which is situated on the sea coast of Panama City. It has now been five years at work and this paper gives an account of its activities.

Malaria control and equine trypanosomiasis have engaged most of the attention of its staff. The author, who is Director, estimates that the Caribbean negro loses 40 per cent. of his efficiency if left in unsanitated conditions and without medical care. He mentions, however, the difficulties with which tropical fruit companies meet in combating malaria.

"It was believed that with the close of the construction period in the history of the Panama Canal the cost of maintenance in mosquito control would gradually fall due to the permanent obliteration of water surfaces and to drainage. It now proves that as a result of the presence of the artificial bodies of water known as Gatun Lake and Miraflores Lake the need for mosquito control will increase rather than diminish so that the control of malaria must be approached as something to be indefinitely continued."

Five native villages on the Chagres river in the midst of large anopheline breeding beds are now under study, with two others as controls. The antimalarial measures are—mosquito-proofed quarters, short radius mosquito control, and compulsory monthly blood-film surveys followed by treatment of those parasitized with atebrin and plasmoquine. In 4 years the parasite rates have been reduced to about a quarter of the original, but it is difficult to make a further reduction.

Trypanosomiasis.—Twelve human cases of Chagas' disease have been studied, none of them harmful and all found accidentally. The *T. hippicum* infection of horses and mules described by DARLING (1910) is of importance. It is treated with success in some half of the cases by naganol and tartar emetic. It is transmitted by the vampire bat, *Desmodus rotundus murinus* [see this *Bulletin*, Vol. 30, p. 120], which will absorb 16 cc. of blood at a meal. The animal

carriers are cattle; 4½ per cent. of those ranging with equines are infected.

Relapsing fever.—As recorded elsewhere a spirochaete found in a wild monkey was transmitted to man through ticks as well as direct [see this *Bulletin*, Vol. 29, p. 208].

Reverting to the malaria sanitation of the Canal the author refers to two new features which have recently appeared—a number of native settlers and the two Lakes above mentioned, one of which has 165 square miles of surface and a shore line of about 1,000 miles. In the last weeks of the dry season one side becomes "a massive breeding bed," and the author suspects that interrupted night flights will carry the mosquitoes to the terminal points of the Zone, *i.e.*, a total flight of 15 miles. The settlers are abundant along the line of flight and their parasitic index is about 25 per cent. Trapping experiments are being made along the supposed line of flight. Another disturbing event is the arrival of three fresh anophelines, *A. albitarsis*, *A. bachmanni* and *A. strodei*.

This is a sample of the work done at the Gorgas Memorial Laboratory from which 47 publications have already been put forth. *A. G. B.*

MACKIE (Thomas T.). **Tropical Medicine in New York City.**—*Amer. Jl. Trop. Med.* 1935. Jan. Vol. 15. No. 1. pp. 59–65.

Though New York is the headquarters of the International Health Board (Rockefeller Foundation) and of its Yellow Fever Research Laboratories, and Columbia University is affiliated with the Porto Rico School of Medicine, and though tropical diseases are often seen in the large foreign-born population as well as in returned missionaries and emissaries of commerce, affording a large and relatively unexplored opportunity for the study of these diseases, there is no hospital or clinical group giving service to patients thus suffering and hence no facilities for teaching. The author seeks to arouse the interest of the medical profession in America, which at present may be compared with that of the medical practitioners of London when MANSON began his work at the Seamen's Hospital towards the close of the last century.

A. G. B.

RUSSELL (Frederick F.). **The Educational Background for the Practice of Tropical Medicine.**—*Amer. Jl. Trop. Med.* 1935. Jan. Vol. 15. No. 1. pp. 1–9.

The author gives a brief account of MANSON's career with special reference to his teaching in China and in London, the foundation of the London School of Tropical Medicine and its later consolidation with the London School of Hygiene; he describes appreciatively what has been done in the elimination of beriberi and the control of malaria in British Malaya; he indicates the lack of training in hygiene and public health in the medical graduate of to-day, and thus leads to this conclusion:—

"The combination of curative and preventive practice which confronts the medical man in the tropics indicates clearly that the student should have all training possible in hygiene and public health, subjects not adequately presented to undergraduate students.

"To make the tropics healthy for Europeans and natives alike, tropical medicine, as a graduate subject, should be taught in close association with schools or departments of hygiene and public health." *A. G. B.*

VAN TRICHT (B.). **European Children in the Tropics.** [Correspondence.] —*Brit. Med. Jl.* 1935. Mar. 23. p. 620.

Dr. James GARDNER wrote in the *British Medical Journal* of December 1, 1934 :—

" Why is it that English people cannot live in the coast towns of Java the whole year round, but have to go up to the hills part of the year, and have to send their children home to England for their health, whilst Dutch couples will go out to Java, live in the coast towns all the year round, and rear and educate their children there, and maintain their health without sending them home to Holland ? "

Dr. van Tricht writes from an experience of 20 years practice in Batavia. The principle of the Dutch colonizers, he says, has always been to keep up family life. As a rule they keep their children with them till they are 14 or 15. That the British do not do the same is the result of prejudice. The Englishman does not like his children to be born in the tropics and wants his sons to be educated at a public school. In Dr. van Tricht's judgment, there is no medical aspect to the question. *A. G. B.*

BLACKLOCK (D. B.). **House Diseases in the Tropics.**—*Lancet.* 1935. Mar. 2. pp. 526–529. [33 refs.]

This was a Chadwick Lecture, delivered in October, 1934. The " house diseases " are, malaria and blackwater, yellow fever, relapsing fever, plague, typhus and kala azar.

In *malaria* the house may be structurally defective so that it cannot be properly screened, or it may be sited within flight range of the anopheline vector, or—a special case—anophelines may breed in water exposed within it. [GIGLIOLI's papers on quartan malaria and blackwater as house infections have been overlooked ; see this *Bulletin*, Vol. 30, p. 97.]

In *yellow fever* neither structure nor site is in question but the presence in or near the house of vessels containing water due, it may be, to the absence of a proper piped supply.

In tick-transmitted *relapsing fever* it is the structure that matters but an improved type of house may harbour the tick vector more than the unimproved ; *e.g.*, the African native's house is a temporary affair and can be abandoned in case of sickness whereas the Arab makes a more substantial residence which gives good harbourage to the vector. In the louse-borne kind overcrowding and personal hygiene are in question.

In *plague* the methods of construction and the materials are of importance, with reference of course to rats. Here again a better house may be worse than a poorer one which gives less harbourage. In India plague prevention is not a matter of expenditure but of domestic hygiene.

In *typhus* as in louse-borne relapsing fever personal hygiene and habits are the important factors. In the endemic form it is the rat that matters.

In *kala azar* the house connexion is not so clear because the precise method of spread is still in doubt. The experience of DODDS PRICE and ROGERS that coolies removed to new lines 400 yards from the old remained free from the disease whereas of 50 who remained in the old lines 16 per cent. died of kala azar is striking, and there is

similar later evidence to the same effect. Whether it is the site or the structure or the habits of the inmates is uncertain.

[There is nothing new here but the presentation is fresh and the importance of housing conditions in the tropics will bear fresh stress.]

A. G. B.

MÜHLENS (P.). Forschungsarbeiten des Hamburger Tropeninstituts und ihre Bedeutung für die Medizin und Hygiene der warmen Länder. [**Researches of the Hamburg Tropical Institute and their Importance for the Medicine and Hygiene of Hot Countries.**]—Reprinted from *Med. Welt.* 1934. No. 39. 12 pp.

The Hamburg Tropical Institute was founded in 1901 and has trained 2,196 doctors. There are 60 beds in the Tropical Hospital. The author gives an account of the principal researches conducted at Hamburg and in the tropics by members of the Institute. The deprivation of colonies in 1919 has not brought the work to an end, for it has continued in South and Central America and elsewhere.

A. G. B.

KNOWLES (R.) & BASU (B. C.). **Mosquito Prevalence and Mosquito-borne Diseases in Calcutta City.**—*Records of the Malaria Survey of India.* 1934. Sept. Vol. 4. No. 3. pp. 291–319. With 11 charts & 1 fig. [38 refs.]

This paper deals with the breeding places of *A. stephensi* in Calcutta and their relation to meteorological conditions, and similarly with the breeding of *A. aegypti* and *C. fatigans*; with *A. stephensi* in relation to malaria, which is so puzzlingly infrequent in Calcutta; with *A. aegypti* in relation to dengue, and *C. fatigans* in relation to filariasis.

The essentials, apart from the graphs, are contained in the summary.

"1. During a period of four years the density of breeding of *Anopheles stephensi* in the centre of Calcutta city has been kept under close observation in an area one square mile in extent around the Calcutta School of Tropical Medicine. This species of mosquito pullulates in almost every receptacle for water storage throughout the city, especially in masonry tanks and overhead galvanized iron cisterns on the roofs for the filtered and unfiltered water supplies. Out of 11,927 examinations during four years no less than 33 per cent. gave positive results.

"2. The correlation of the monthly incidence of *A. stephensi* breeding with the meteorological conditions in the city is shown (the latter figures being from the means of twenty years' records at Alipore). The maximum breeding occurs in July and the minimum in April.

"3. During the same four years the density of breeding of *Aedes aegypti* in the same area has been under observation. The chief breeding sites are the same as those for *A. stephensi*. Out of 11,927 examinations of such sites no less than 41 per cent. gave positive results. The greatest intensity of breeding was found during July and August, and the lowest in February and April.

"4. The breeding of *Culex fatigans* throughout the same area was observed for two years. The chief breeding sites are the same as those of *A. stephensi* and *A. aegypti*. Out of 4,339 examinations of suspected breeding sites 8 per cent. gave positive results. The greatest intensity of breeding was found in November and the lowest in July.

"5. Many residents of Calcutta city acquire malaria during visits to the *mofussil*. There is continuous and heavy importation of malaria into the city by immigration from heavily endemic areas in Bengal. The local

strain of *A. stephensi* can be very readily infected experimentally with malaria. Meteorological conditions for malaria transmission are suitable over a large part of the year. Yet at present malaria is but little endemic in the city. What are the reasons for this discrepancy ?

" 6. The chief reason for the low endemicity in Calcutta appears to be that the maximum density of *A. stephensi* breeding (July–August) fails to coincide with the chief incidence of malaria cases (October–November), and especially of gametocyte carriers (December). Details are given with regard to all three species of malaria parasite, and conditions in Bombay and Calcutta are contrasted.

" 7. The maximum peak of *Aedes aegypti* breeding is in July and August ; and this corresponds to the maximum intensity of fresh infections with dengue (August and September). Here the correlationship is almost perfect. This accounts for the devastating epidemics of dengue which so often sweep the city and cause enormous financial loss.

" 8. New admissions for filariasis are at a fairly uniform rate throughout the year (general filaria rate 9·5 per cent.). The most favourable period for transmission is during the monsoon (July–September), when the intensity of breeding of *Culex fatigans* is at a very low level. The peak for *Culex* breeding is in November, when conditions for filariasis transmission are rapidly becoming unfavourable. This want of coincidence keeps the filariasis rate at a relatively low level.

" 9. The cure for this state of affairs is *the provision of a continuous water supply of sufficiently high pressure to prevent mosquito breeding in the reservoirs, cisterns, etc., throughout the city.* It is the low pressure and intermittent character of this water supply which is responsible for the prevalence of mosquito-borne diseases in Calcutta."

The following passage is found under Remedial Measures :—

" Malaria is not apparently a very serious danger to Calcutta city, but we have already one virulent mosquito carrier—*Anopheles stephensi*—breeding in almost every other water storage receptacle in the city, together with the recent introduction of a second, and even more virulent carrier, *Anopheles sundaicus* (*A. ludlowi*). The future is quite uncertain and it would not be safe to anticipate. Further enquiry is urgently called for (and is at present in progress).

" Dengue is a perpetual nuisance in Calcutta and from time to time it assumes a severe epidemic form. The mosquito which transmits the disease is known, its breeding places in the city have been described, and its eradication ought to be possible. Dengue must cause a very big financial loss to the commercial industries of Calcutta annually.

" Filariasis in Calcutta city is a disease which especially affects the Anglo-Indian and Hindu communities. It is a cause of very much suffering and economic loss among the poorer Anglo-Indian and among Hindu communities. The mosquito which transmits it can be eradicated if measures be taken against the other two species responsible for mosquito-borne diseases in Calcutta.

" The cure for this state of affairs is neither mosquito-brigades nor larvicides, neither kerosene oil nor Paris green. *It is the provision of an adequate high pressure and continuous filtered and unfiltered water supply to the city.* This is no new recommendation ; it was urged by James (1913), Christophers (1915), Iyengar (1920), Basu (1930), and Covell (1932). It is abundantly clear that the main breeding places of mosquitoes in Calcutta city are the reservoirs of filtered and unfiltered water. These constitute such danger as may occur of epidemic malaria from *Anopheles stephensi* breeding ; of the frequent and harassing epidemics of dengue which sweep the city ; of the very great amount of suffering among the poorer class Anglo-Indians and among Hindus from filariasis. Finally, if by any chance yellow fever was introduced into the city, conditions would probably be more terrible than anything ever recorded in Panama or Central and South America." *A. G. B.*

PARKER (R. R.). **Recent Studies of Tick-borne Diseases made at the United States Public Health Service Laboratory at Hamilton, Montana.**—Fifth Pacific Science Congress. pp. 3367–3374.

Laboratory activities at Hamilton, Montana, have been concerned mainly with the four recognized disease conditions associated with the bite of the Rocky Mountain wood tick, *Dermacentor andersoni*: Rocky Mountain spotted fever, tularaemia, Colorado tick fever and tick paralysis. This paper is concerned chiefly with the first and second, both of which have come lately into prominence, R.M. fever as having been recognized in several central and eastern States as well as in south-west Canada, tularaemia as having been identified in northern countries of Europe and Asia and in Japan.

Rocky Mountain fever is now known in 14 eastern and Mississippi States as well as in 13 Rocky Mountain and Pacific coast States. It is probable that these recently detected foci are not fresh introductions of the virus but that it has long been present in the arachnid and mammalian fauna. It may be that the virus is present in a low-grade phase incapable of provoking other than mild or inapparent infections, and that the virulence in individual ticks may on occasion be raised to such a level as to provoke recognizable infections. These questions are now under study by means of the rabbit tick, chosen because it consistently carries low-grade virus, and is the only tick which occurs wherever spotted fever is endemic, with a range extending still further. Present evidence goes to show that ticks are the only carriers, and the studies made since 1928 incriminate *Dermacentor variabilis*, *D. occidentalis*, *D. parumapertus marginatus*, *Rhipicephalus sanguineus*, *Amblyomma americanum* and *A. cajennense* as possible natural carriers and *D. occidentalis*, *R. sanguineus* and the two species of Amblyomma as possible agents of transmission to man. It is considered probable that the virus is equally well adapted to tick species occurring in other continents.

Colorado tick fever.—In many parts of the Rocky Mountain region, most often in Colorado and Wyoming, the febrile reactions so designated follow the bite of *D. andersoni*.

"This disease is of a remittent type and is commonly characterized by the occurrence of two febrile periods, each of two to four days' duration, with a remission period of one to several days between. The onset is sudden and the fastigium is often reached within the first 24 hours. *There is no rash.* Symptoms other than fever are malaise, chilly sensations, severe headache, non-productive conjunctivitis, photophobia, and generalized muscular and joint pains with particularly severe aching in the lumbar region. The malaise is usually intense. Constipation is the rule. The temperature often reaches 104° to 105°F. or over, but may not exceed 101° to 102°F. The pulse rate is frequently 120 to 130. In most instances, though not always, the symptoms are more severe during the first febrile period. It is claimed that occasional cases are seen with one or three febrile periods instead of two. The recurrence of symptoms has sometimes been attributed to a too early attempt to become active on the part of the patient. It is non-fatal."

"The onset is more sudden than in mild cases of spotted fever, the pulse rate accelerates more rapidly, and the fastigium is reached more quickly. The initial malaise and general muscular pains and backache are usually more intense. Also, there is no rash. As noted above, all attempts to reproduce the infection in laboratory animals by blood inoculation (usually easily accomplished from typical cases of spotted fever) have consistently failed, while the sera from blood samples taken during both illness and

convalescence have not agglutinated *proteus* X organisms in significant titre."

For the section on Tularaemia, which contains a summary of the numerous findings in that disease, the paper must be consulted.

A. G. B.

YORKE (Warrington) & MURGATROYD (Frederick). **Biological Problems in Chemotherapy.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1935. Mar. 8. Vol. 28. No. 5. pp. 435–457. With 4 graphs. [32 refs.]

The discovery of a technique by means of which trypanosomes may be kept alive *in vitro* for at least 24 hours has enabled certain chemotherapeutic problems to be reinvestigated. Trivalent arsenic and antimony compounds have in comparison with pentavalent compounds a surprisingly high trypanocidal activity both *in vitro* and *in vivo*. This suggests that the therapeutic action of the trivalent arsenicals and arsphenamine compounds is dependent on the trypanocidal action of the unchanged drugs, while that of the pentavalent compounds is associated with some previous change, probably reduction, in the body of the host. Nevertheless pentavalent are preferred to trivalent compounds in the treatment of trypanosome infections. This is probably due to a number of factors. When trivalent arsenicals are injected into rabbits the serum is at once endowed with an enormous trypanocidal titre. This high titre does not, however, last long. When pentavalent compounds are injected the trypanocidal titre develops much more slowly. Trivalent arsenicals are also excreted more rapidly in the urine, while pentavalent compounds such as tryparsamide, though rapidly giving rise to a high trypanocidal titre in the urine, are much more slowly excreted. After an injection of tryparsamide into a rabbit, for instance, the trypanocidal titre of the urine only reaches zero after a day or more. A further difference between tri- and pentavalent arsenical compounds is that reduced tryparsamide and neoarsphenamine diffuse rapidly into and out of red blood corpuscles and are unchanged in the process. Tryparsamide also diffuses into red blood corpuscles but is to some extent reduced by the haemoglobin into its highly trypanocidal trivalent form. Other tissues also probably play a part in this reduction.

The essential characteristic of drug resistance is found to be a change in the parasites whereby they do not fix the drug applied *in vitro* as do normal parasites. The development of a resistant strain is fundamentally a mutation, *i.e.*, a gradual change in all or certain individuals resulting from the stimulus of frequent exposures to suitable concentrations of a drug. When once a strain of trypanosomes has become arsenic resistant it retains the character indefinitely. It is not lost when passed for prolonged periods through laboratory animals by means of the syringe nor by numerous cyclical transmissions through the natural intermediate host. The importance of this concept is seen in the fact that arsenic resistant strains of trypanosomes are being obtained in considerable numbers from African natives, probably as a result of the wholesale atoxylization of patients which is now being carried out by itinerant medical missions. Although it is easy to produce strains of trypanosomes resistant to aromatic

arsenicals and antimonials it is fortunately difficult to produce strains resistant to Bayer 205. Experiments are described to show the importance of the size, spacing and number of doses of a drug in producing resistant strains. *G. M. Findlay.*

BUCHANAN (J. C. R.) & SANDERSON (Iain). **Ulcers in the Native African. A Further Investigation.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1935. Mar. 8. Vol. 28. No. 5. pp. 505–510. With 1 diagram.

This is a continuation of a paper by CONNELL and Buchanan noticed in Vol. 31, p. 337 of this *Bulletin*, in which it was stated that "zipp" (bipp with zinc ointment substituted for bismuth) and a plaster case formed a satisfactory treatment.

Data relative to the patient or the ulcer are given in a table. This shows *inter alia* that while 56 members of the hospital native staff had a Hb percentage of 93·5, in 89·5 per cent. of the ulcer cases the Hb was under 80.

A diagram shows a leg in four aspects on which is dotted the sites of 641 ulcers. These dots merge over the tibia in front, the tendon of Achilles and the malleoli, showing graphically that the main ulcer-bearing areas are situate in areas poorly supplied with blood and exposed to injury.

Three groups of patients were treated (1) ambulatory, 67 cases, as in the first paper, with zipp under plaster, weekly injections of arsenic or bismuth, and mercury and pot. iod. by mouth; (2) 55 cases local treatment as (1) but in bed in hospital with a special diet including cod-liver oil, yeast and iron; (3) 36 cases, as (2), but with "zincera" substituted for zipp once the ulcer is clear (zincera is beeswax 80 parts to zinc oxide 20 parts, heated till soft, spread on lint and closely applied). The results are shown in a table. The dietetic treatment improved the general condition without accelerating healing. In the third group there was such acceleration, and it is this treatment both in and out of hospital which they recommend for up-country use. The time occupied in healing was 25·2 to 36 days according to the area of the ulcer. *A. G. B.*

CLUNIE (T.) & EVA (Alokihakau). **Tropical Ulcer in Fiji.**—*Fiji Ann. Med. & Health Rep. for Year 1933.* pp. 34–37.

In 1933 the incidence in Fiji of this condition "assumed almost epidemic proportions." Clinically it resembles the ulcerative dermatomycosis of Castellani. There was usually a history of a scratch by sensitive grass. There was no tendency to burrowing. The patients came from institutions and road gangs, which suggests to the authors a dietetic factor, for in these bodies white bread and sugar are used to the exclusion of native foods. Treatment was by Dickson-Wright's method, *i.e.*, strapping with elastoplast at a cost of 1s. 9d. per week, the patient following his vocation, and the average course being two to three weeks. No figures are given of the numbers treated.

A. G. B.

BRENNAN (C. H.). **An Ointment for Use in the Treatment of Ulcers.**—*East African Med. Jl.* 1934. Oct. Vol. 11. No. 7. p. 233.

The author thus describes his ointment :—

" The ointment is composed of :—

Cod liver oil	3 drams
Eusol	2 ounces
Vaseline	1 ounce
Ung. zinci	1 ,,

" The cod liver oil is put in a bottle with the eusol and well shaken together.

" The mixture is then worked into the vaseline and ung. zinci on a porcelain plate.

" It has been found useful in the 'clean' stage of the ulcer and can be left on for three days, which is an economy in labour and dressings."

A. G. B.

CARMAN (John A.). **A Note on the Use of Tinfoil in the Treatment of Abrasions and Ulcers.**—*Jl. Trop. Med. & Hyg.* 1934. Dec. 1. Vol. 37. No. 23. pp. 376–377.

The author uses tinfoil in superficial abrasions, superficial burns after the initial pain and shock have been alleviated, and ulcers with clean granulating surfaces where skin-grafting is not justified or is refused. The surface is cleaned with saline or boracic, a sheet of " silver paper " is bandaged in position and left undisturbed for 3–7 days. The author does not claim originality for the treatment.

A. G. B.

GIORDANO (Mario). Un caso di ainhum in Tripolitania. [**A Case of Ainhum in Tripolitania.**]—*Ann. di Med. Nav. e Colon.* 1934. Sept.–Oct. 40th Year. Vol. 2. No. 3–4. pp. 529–533. With 2 plates. English summary (2 lines).

The case was typical and its chief interest lies in the fact that only four cases have previously been reported in Tripolitania. The patient was a negro, 27 years of age, who first noticed the condition 3 years ago. The author believes that the disease is not very rare, but patients do not all come for treatment and on the other hand some that do are wrongly diagnosed. This, in fact, was diagnosed as " atrophic ulcer of the left little toe " and the W.R. proving positive (though the Kahn and Sach's Citochol tests were negative) the addition " of syphilitic origin " was made.

H. H. S.

IRGANG (S.) & ALEXANDER (E. R.). **Iodide Therapy for Relief of Pain in Ainhum. Report of a Case.**—*Arch. Dermat. & Syph.* 1934. Oct. Vol. 30. No. 4. pp. 508–509.

" A case of ainhum [in a negro from Trinidad] in which severe pain of about ten weeks' duration was the chief complaint is presented. . . . A few hours after a single intravenous injection of 31 grains of sodium iodide, this symptom disappeared; it had not returned fourteen days later, when the patient was last seen."

A. G. B.

KOUWENAAR (W.), MAASLAND (J. H.) & WOLFF (J. W.). Onderzoekingen over het rhinoscleroom op Sumatra. III, IV en V. [**Rhinoscleroma in Sumatra.**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1934. Sept. 25, Oct. 9 & 23. Vol. 74. Nos. 20, 21 & 22. pp. 1285–1304; 1330–1342; 1447–1454. With 60 figs. on 10 plates.

III. Kliniek van het rhinoscleroom. [**Clinical Conditions.**] [KOUWENAAR.]

By a study of 53 definite cases the clinical symptomatology of this deforming disease has been assembled. Numerous photographs are included.

The symptoms are summarized as follows :—1. The first subjective symptoms are itching, sometimes pain and later bleeding at the nose. 2. Infiltrations next become visible in the skin of the nose, the upper lip and the interior of the nose. These can extend to the neighbouring localities, are hard as bone, bluish red, usually fairly symmetrical, bleed easily when affecting mucous membranes and are often very painful. 3. Extensions take place to pharynx, soft palate, and tonsils. The uvula frequently is destroyed with marked cicatricial contraction. The lachrymal sac may become involved and a fistula may form in this situation. If the eustachian tube is affected there is tinnitus and deafness. 4. In the Batak lands of Sumatra, as compared with that of Eastern Europe, rhinoscleroma exhibits a much greater localization to nose, upper lip and palate. 5. The lymph nodes below the jaw are enlarged. 6. This affection is a slowly progressive one, which does little harm to the general health. 7. In some cases it is more rapid with production of deforming tumours of the nose and upper lip. 8. Arrest of the process at any time was not observed. Contraction of the tissue with the formation of fibrous tissue may decrease the size of the tumours. Ulceration may later take place and the condition come to resemble gangosa. 9. Women are more frequently affected than men. 10. Clinical symptoms do not appear before puberty and develop usually between the 20th and 35th year. 11. It is possible that true bacillary carriers occur.

IV. Bacteriologie. [**Bacteriology.**] [WOLFF.]

The bacterium which is incriminated as the causal agent of rhinoscleroma was first described by FRISCH. It belongs to the group of capsule bacteria, is named *Klebsiella rhinoscleromatis* and is closely allied to the ozaena bacterium, *Klebsiella ozaenae*. The specific bacillus has been isolated frequently from the rhinoscleroma nasal lesions affecting the Bataks of Sumatra and is here subjected to bacteriological analysis, of which the detail is as follows :—

Gram-negative bacilli, with rounded ends, mostly capsulated, non-motile, producing no gas in any medium ; indole-negative : not liquefying gelatin, nail-head appearance in stab culture : endo-plate colony slimy, white or extremely pale rose ; agar colony slimy, sometimes irregularly contoured ; Rothberger-Oldekop unchanged : no coagulation of milk even after boiling ; turbidity in broth, sometimes a slimy ring at the edge : acid formation (sometimes slow) in glucose ; lactose unchanged : acid in mannite and maltose : slow acidification of saccharose : reduction of litmus absent ; inhibition of growth by bile : litmus whey violet to violet-blue : methyl red reaction positive (red) : Voges-Proskauer reaction negative.

The *Klebsiella rhinoscleromatis* does not, while the *Klebsiella ozaenae* and *K. pneumoniae* do, invert amygdalin. These organisms are

serologically differentiated. The specific organism was obtained also from contacts with and the family of patients suffering from rhinoscleroma. The *Klebsiella ozaenae* was also met with in the nose flora of Bataks. An investigation of the nasal flora of Bataks outside the region in which patients were found furnished no cases with the specific organism. A point of interest in the investigation was the great frequency of a faecal nose flora among the Toba- and Karoland Bataks.

V. De waarde der complementbindingsreactie bij het rhinoscleroomonderzoek. [**Value of Complement Fixation Reaction in Rhinoscleroma.**] [WOLFF.]

A complement fixation reaction would, if it were sufficiently specific, be a valuable means of making rapid survey of a population for rhinoscleroma along with clinical and bacteriological examination and of detection of early cases. The present research goes to confirm its specificity although group reactions may be obtained in rhinoscleroma patients with ozaena antigen. Considerable importance is attached to the method of preparing the antigen if clear cut positive results are to be obtained. The method employed was to filter a fresh suspension in normal salt solution of a 24-hour culture through cotton wool, heat the filtrate 1 hour at 80°C., keep it in the ice chest over night, pipette off the supernatant suspension and bring the suspension to a standard opacity for use as test antigen. It is possible that still more specific results may be obtained by using an ether extract and, still more important, a preparation obtained which can be used for about a month. The salt suspension requires to be freshly prepared. In the actual test an excess of complement is used.

The reaction was found to be positive in 92·5 per cent. of the manifest rhinoscleroma cases and in nearly 100 per cent. of the bacteriologically positive cases. Non-specific reactions occasionally appear which represented, in the authors' series of control persons, a proportion of about 1·1 per cent. A much higher percentage (6·7) of positive reactions was, however, obtained by confining the control observations to families and to inmates of the same house or village. Some of these were probably carriers or early cases with no clinical symptoms.

W. F. Harvey.

SMITH (E. C.) & ELMES (B. G. T.). **Malignant Disease in Natives of Nigeria: an Analysis of Five Hundred Tumours.**—*Ann. Trop. Med. & Parasit.* 1934. Dec. 20. Vol. 28. No. 4. pp. 461–512. With 71 figs. on 18 plates. [24 refs.] [Summary appears also in *Bulletin of Hygiene.*]

So many vague and unsubstantiated statements concerning the incidence of malignant disease in the less civilized races of man have been current, that the collection of data provided in this paper is especially welcome. The examples of cancer in natives here described have been collected from all over Nigeria wherever a medical officer has penetrated.

As the authors point out, there are some essential obstacles to the study of cancer occurring among primitive races. Men attend the hospitals more readily than women and the comparative incidence of the disease in the two sexes cannot be ascertained. Again, with the exception of some non-adults, it is impossible to know the age of a native patient. Nevertheless, and in spite of such inherent drawbacks,

the authors have collected data of great interest and value. They establish indisputably the fact that natives of Nigeria are afflicted with cancer, and thus supply yet one more refutation of the oft repeated though rather foolish statement that it is a disease of civilization. Not the least noteworthy part of their paper concerns the nature and sites of the malignant growths. If the melanotic tumours are counted as sarcomas, the carcinomas and sarcomas occurred in approximately equal numbers—carcinoma, 225; sarcoma, 220; other tumours 55, including mixed parotid tumour (18), endothelioma (17), adamantinoma (13), cylindroma (2), perithelioma (2), teratoma (2), chorionepithelioma (1).

That the incidence of cancer in the various regions of the body differs in the various races of man is well recognized; and the phenomenon is strikingly illustrated in these cases from Nigeria. Of skin tumours there were 94, and of these 39 originated in the foot, 30 being melanomata. There were 55 cases of tumour of the liver of which "32 were undoubtedly of primary hepatic origin," cirrhosis being present in 17 of these primary cases. Among 49 tumours of bone, no fewer than 28 involved the jaws, and of these 13 were adamantinomas. The orbit was a not uncommon site of cancer, being responsible for 30 of the 500 cases analysed. Of these 30 orbital tumours, 10 were round-celled sarcomas occurring in children under 10 years of age. Another rather frequent source of malignant growth was the salivary system, 29 tumours being recorded as affecting the parotid region. There were 25 cases of mammary carcinoma, one of which was in a girl of 15, and three were in young adult males. Curiously enough, in a country where infection with *Schistosoma haematobium* is common, only one tumour of the bladder was seen—a carcinoma—and in this instance there was no evidence of a schistosome infection. The authors saw no instance of cancer of the pharynx, and only one case—in an old man—of cancer of the oesophagus.

They mention a squamous carcinoma of the finger in which "the history is suggestive of a possible occupational factor in connection with the aetiology of the condition," the patient having been an indigo-worker for many years. Judging from the numerous facts collected by the authors in this paper, the native races of Africa appear to offer a fine field for original cancer research. *H. Burrows.*

CHATTERJEE (Tarapada). **Epidemic Dropsy.**—*Calcutta Med. Jl.* 1934. July. Vol. 29. No. 1. pp. 7–16.

This paper contains a full summary of our knowledge of epidemic dropsy as it occurs in Bengal.

The following etiological factors are of importance: Epidemic dropsy is almost exclusively confined to Bengalis in Bengal. No Marwari nor European has ever been affected with the disease. Epidemics occur about the middle or end of the rainy season and as winter comes on the disease disappears. Males and females are equally affected, but the author has never seen the condition in a child of less than 8 years. One attack of epidemic dropsy does not confer immunity, nor does it render persons more liable to a second attack. Though the disease occurs in households, etc., it should not be regarded as infectious.

The actual cause of epidemic dropsy is to be sought in the peculiarities which distinguish the Bengalis from other races living in the same

district. Such conditions as sanitation and the eating of fish, meat and flour can be excluded. Two factors remain, *viz.*: (1) The Bengalis take parboiled or steamed polished rice, while the Marwaris do not use rice at all or, if they do, only polished "atap" rice. (2) Marwaris do not use mustard oil for cooking, but only for preserving certain articles of food. Facts are given which suggest that mustard oil and parboiled or steamed rice may be causative factors. Nevertheless, the author quotes his own personal experience, which points to the presence of another unknown factor. He and other members of his family were attacked with epidemic dropsy in 1932. As soon as the first symptoms appeared they all left home, but took their food (including rice and mustard oil) with them. Most of them were cured in a few days, but as soon as the author returned home the disease recurred. The only changed factor in this instance was water. According to the author, rice and mustard oil prepare the soil, and microorganisms in water produce the actual disease.

The usual *post mortem* findings of the disease are described and under the heading of symptomatology the following may be noted :—Oedema of the legs and other parts is, of course, the chief symptom but serous effusions are rare. Palpitation and dyspnoea occur in about 50 per cent. of cases. Cardiac failure may be acute and rapidly progressive. In addition to the usual skin manifestations, pigmentation occurs in nearly all cases and the hair frequently falls out. Glaucoma is present in about 5 per cent. of cases and haemorrhoids are sometimes met with. If the patient be removed to a place free from the disease on the very first appearance of symptoms death is rare. 2 to 5 per cent. of sufferers die from heart failure.

There is no specific treatment and vitamin preparations have no effect. Removal of the patient from his former surroundings, omission of mustard oil and rice from the diet and boiling drinking water are the most successful measures. If it is impossible to exclude rice from the diet only the "atap" variety should be allowed.

A. D. Bigland.

MASSIAS (C.). Myosites suppurées observées en Cochinchine. [**Suppurative Myositis seen in Cochin-China.**]—*Bull. Soc. Path. Exot.* 1934. Oct. 10. Vol. 27. No. 8. pp. 768–770.

A brief account is given of ten cases in Annamites, in which the site of inflammation was the thigh muscles, buttocks, lumbar muscles, deltoid or calf, and of three cases in which more than one group was affected. All were treated by free incision and irrigation with a chlorine solution. Blood culture was never positive. In nearly all instances a staphylococcus was present. This organism plays a considerable part in Indo-China, where epidermitis, boils, abscesses of the scalp in children, pyuria, are frequent. Myositis is much less common. It can be explained only by a blood infection in persons with a staphylococcic skin lesion. *A. G. B.*

HUARD (P.) & RENUCCI (N.). 33 observations de myosites. [**33 Observations of Myositis.**]—*Bull. Soc. Méd.-Chirurg. Indochine.* 1934. Nov. Vol. 12. No. 9. pp. 825–860.

The 33 cases of myositis described case by case were staphylococcal in 26 instances, streptococcal in two, paratyphoid in one and in four

the nature was not determined. Treatment was chiefly by lavage with bacteriophage.

The senior author returns to this subject [23 observations were reviewed in this *Bulletin*, Vol. 30, p. 808]. What follows concerns the staphylococcal cases alone. Some diagnostic errors are discussed. Development was often acute, but sometimes sub-acute and "cold." Treatment, he says, has been transformed by bacteriophage. Almost invariably its injection is followed promptly by cessation of inflammation, and when absorption does not take place a small incision suffices for cure. The treatment must be applied exactly with no fault of technique. The focus of suppuration has to be determined, not always an easy task. When the trocar has entered the cavity it must be emptied completely, so that the trocar must not only be in the right place but be large enough to evacuate all the débris. Once empty the cavity is washed several times with bacteriophage and is then emptied entirely. Puncture plus lavage is renewed 2–4 times. The phage is rarely given by the veins and never under the skin. If a fistulous opening is present the phage is not used. After surgical cure orthopaedic treatment is often needed, followed by physiotherapy.

By this treatment serious complications are avoided and recovery is rapid. [The authors do not give the source of the phage or any detail beyond what is told here.] *A. G. B.*

MASSIAS (Charles). Pathologie tropicale. La melioidose. [**Melioidosis.**]—Reprinted from *Gaz. des Hôpit.* 1934. Oct. 13. Vol. 107. No. 82. pp. 1449–1452. [33 refs.]

A very good account is given in this general review of melioidosis, its history, the clinical features of its acute, subacute and chronic manifestations, its diagnosis, the differential characters of its causal bacillus, and its epidemiology.

How protean in its appearance the disease may be is evident from the list of some of the diseases with which it has been compared or confused :—septicaemic plague, malignant malaria, cholera, typhoid fever, typhus, broncho-pneumonia, pulmonary abscess, galloping phthisis, abscess of the liver, pyelonephritis, osteitis and subcutaneous multiple abscess. Blood culture alone will provide the diagnosis in acute cases and pus culture is indispensable in chronic cases. The main pathological lesions are miliary granulations with necrotic centre in all organs. These may increase in size as the disease continues and appear as caseous foci and abscesses. A useful table is given of the common and differential characters of the bacillus of Whitmore and the glanders bacillus. Some of these may be given as :—

(1) *Common* :—gram-negative, aerobic, growing on ordinary media, brown pigment on glycerinated potato, and crossed fixation of complement reaction. (2) *Differential*, by pairs, for *Pf. whitmori* and *Pf. mallei* respectively :—motile and non-motile ; cultures profuse and sparse ; colonies rarely oily and none but oily ; pellicle on broth abundant and absent ; milk coagulated on the 4th day and the 10th day ; gelatin liquefied and non-liquefied ; highly and feebly pathogenic for rodents ; feeble and very high pathogenicity for the equidae ; cuti-reaction rarely positive to mallein and rarely positive to whitmorin.

Under epidemiology the views of STANTON and FLETCHER are accepted that rats suffer from epizootics and are probably the reservoirs

of the virus. Human infection is brought about by contamination of food with rat dejecta. *W. F. Harvey.*

JAMES (Clifford). **Chronic Maxillary Sinusitis (Suspected and Unsuspected) in the Tropics.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1935. Apr. 17. Vol. 28. No. 6. pp. 635–644. With 1 map & 1 chart. [11 refs.]

The author finds this condition common in that part of the tropics where his practice lies, the islands of Choiseul in the British Solomons and New Britain in the Mandated Territory of New Guinea, both with hot and moist climates. Among the 60 cases studied the diagnoses had been pulmonary tuberculosis, influenza, asthma, chronic bronchitis, chronic malaria, sarcoma of the maxilla, fibrositis; many of which were only complications.

The complications may be serious, including extension of inflammation to ear, eye, orbit and brain; by inhalation; by the sinus acting as a focus of infection, causing toxaemia and affection of joints or fibrous tissues. Of 30 complications mentioned in his paper, 18 occurred in his own cases. Once the condition is diagnosed treatment is effective. The chief symptoms in descending order of prevalence were headache, most severe in the morning and mostly frontal; chronic cough; fever; influenzal attacks caused by temporary blocking of the ostium of the sinus; asthma; fibrositis; ear complaints, either from extension or reflex; other symptoms were only occasional. There was almost always a nasal voice and sometimes a nasal discharge. For diagnosis he employed direct examination of the nose with or without cocaine and postural tests and puncture, each of which is described. Puncture was positive, *i.e.*, revealing excess of mucus or pus or muco-pus, when nasal examination was negative in one-third of the cases. There was no case of dental origin. Treatment is by wash-outs or radical operation. *A. G. B.*

ALLEN (F. R. W. K.). **Five Cases of Rhinosporidiosis, Four in Females.**—*Indian Med. Gaz.* 1935. Feb. Vol. 70. No. 2. pp. 76–77.

It is interesting to note that of the five cases of rhinosporidiosis which are here placed on record, four were in females. The author considers that rhinosporidial infections may not be uncommon in rice-growing districts. "It is possible that the spores are inhaled when rice is being husked." Recurrences are common even after removal of the polypoidal nasal lesions unless great care is taken to remove all the tumour together with its pedicle. *W. F. Harvey.*

LATHAM (D. V.). **Gillan's Oedema.**—*East African Med. Jl.* 1935. Feb. Vol. 11. No. 11. pp. 358–360.

The author describes a case which he regards as "Gillan's oedema" [*ante*, page 71]. The patient was a girl of 4 years who had all the symptoms given by GILLAN and in addition a hookworm infection. She received calcium lactate and glucose and made a complete recovery. Afterwards the hookworms were banished by carbon tetrachloride but only after a third attempt.

The author believes this disease to be hitherto undescribed.

A. G. B.

AZMY (S.), GAAFAR (M.) & NOSHOKATI (H.). **Observations on Anaemia in Egypt.**—*Jl. Egyptian Med. Assoc.* 1934. Sept. Vol. 17. No. 9. pp. 739–754.

——, —— & ——. **Observations on Anaemia in Egypt.**—*Jl. Trop. Med. & Hyg.* 1934. Oct. 15. Vol. 37. No. 20. pp. 311–316. With 1 chart.

These practically identical papers deal with 150 cases of hypochromic microcytic anaemia in Egypt, associated with ancylostoma in 24 cases, bilharzia 17, mixed 37, splenomegaly 8, pellagra with or without parasites 57, chronic dysentery 3, ascaris 2, achlorhydria without parasites 2.

Ancylostoma.—Severe, haemoglobin below 30 per cent. in 16 with lowest 10, red cells usually between 2 and 3 millions with lowest 1,120,000, corpuscular resistance and icteric index normal ; of 18 cases 2 had achlorhydria and 6 hypochlorhydria ; there were haemic murmurs, harsh and marked, not usually disappearing on treatment, with marked improvement in the anaemia.

Schistosomiasis.—Haemoglobin not less than 40 in urinary, not less than 25 in intestinal cases, the red cells being not less than 3 and 1·8 millions respectively, fragility and icteric index normal, hypoacidity commoner in intestinal infection.

Splenomegaly.—Haemoglobin not less than 45 and red cells than 3 millions, usually cured by iron without reduction in size of the spleen.

Pellagra : without parasites 12 who had haemoglobin above 55, red cells 4 millions or more, colour index usually below 1, gastric acid usually below normal. They improved rapidly, except for the nervous symptoms, on ordinary hospital diet.

Simple achlorhydric anaemia.—Reduced iron gave very good results, improvement being, however, somewhat more rapid when dilute hydrochloric acid was added.

In treatment the best results were obtained with reduced iron 2 grams thrice daily after food, combined with 2 to 8 cc. of [? dilute] hydrochloric acid in water. Liver increased slightly the red cell numbers but not the haemoglobin ; arsenic diminished the latter ; vitamins were of no particular value ; blood transfusion was given in urgent cases, but unless followed at once by iron administration the temporary benefit was lost. Cases are cited to show the following :—Failure of a man with haemoglobin at 25 to benefit from deworming till iron was given, deleterious effect of arsenic on haemoglobin, cure of anaemia without expulsion of worms but " if administration of iron is stopped and the parasites are still present the anaemia recurs. That is why anthelmintics are essential." *Clayton Lane.*

CAMERON (J. A. P.). **Two Cases of Gout recorded with Commentary.** —*Malayan Med. Jl.* 1934. Dec. Vol. 9. No. 4. pp. 206–208. With 2 figs.

1. A male Cantonese *aet.* 38, 20 years resident in Malaya, had history of pain and swelling in the joints for 3½ years. Tumours removed from the sole, dorsum of feet and trochanter, consisted of chalky matter and white creamy material found to be practically pure " acid urate " crystals. X-ray photo of knee joint showed osteo-arthritic lipping. The blood uric acid percentage was 6·37 mgm. as compared with the normal 1–3 mgm.

2. In the second case with an eight years' history the changes—disorganization of articulations with bony ankylosis—were those of rheumatoid arthritis and the blood uric acid was 5·45 mgm. per cent.

The Editor states that gout is "not uncommon" in Malaya: the etiology is obscure. *A. G. B.*

CHOPRA (R. N.) & GHOSH (Sudhamoy). **Some Common Indigenous Remedies.**—*Indian Jl. Med. Res.* 1934. Oct. Vol. 22. No. 2. pp. 263–270. [21 refs.]

The authors give a description of their studies on the chemical composition, pharmacological action and therapeutic properties of some of the common remedies used in Indian indigenous medicine. Since the result was to show that the quantities of physiologically active substances contained were insufficient to produce marked effects it will be sufficient to give a list:—

Picrorhiza kurrooa, Benth., N.O. Scrophulariaceae.
Erythrina indica, N.O. Leguminosae; the Indian coral tree.
Sanseviera zeylanica, N.O. Liliaceae; a fibre plant.
Pongamia glabra, N.O. Leguminosae.
Hygrophila spinosa, N.O. Acanthaceae.
Bryophyllum calycinum, Salisb. N.O. Crassulaceae.
Rheum emodi, N.O. Polygonaceae; one of the rhubarbs.
Solanum indicum, N.O. Solanaceae. *A. G. B.*

KENNEDY (Walter P.). **The Polynuclear Count in an Iraq Population.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1935. Mar. 8. Vol. 28. No. 5. pp. 475–480. With 3 figs.

The author starts by a brief exposition of the Arneth count and refers to the work of W. E. COOKE who together with E. H. PONDER has probably done more work on this subject than anyone else. He then gives the average count and index for Britain and states that it is "more useful to express the result as a single index, and for this purpose the weighted mean gives a very sensitive measure of the state of the count. The average weighted mean of the above series [of COOKE and PONDER] is 2·74 with a standard deviation of 0·18," but unfortunately for the average reader he does not define the term "average weighted mean." Most people are agreed that infection usually [but not always] brings about a shift to the left and in order to interpret what constitutes a shift to the left it is essential to know what are the normal limits for the district in which the test is made. It certainly differs in the tropics from what obtains in temperate climates, and, moreover, the reviewer, when studying this question 20 years ago, found that there were differences between the white man and the native in the same country. BREINL and PRIESTLEY have shown that the index differs between native adults and children in New Guinea [see this *Bulletin*, 1916, Vol. 7, p. 336].

As a preliminary to possible work in the future the author has examined 121 samples from inhabitants of Iraq to establish as near as he can the normal in that country. He took them from three representative groups: Kurds from Kirkuk, Dulaimi from Haditha, and Jews from Sandur, and found a decided shift to the left as compared with British figures. Though there are several infections not severe enough to prevent a man working and such a man when asked if he was in good health would reply in the affirmative, the author

does not accept these cryptic infections as the sole cause of the difference in the count. "The possible influence of environmental factors is a question requiring further investigation." In the tropics certainly and, it may be, in other places also the possible disturbing factors rob the Arneth count of much of its reputed value as an indicator of morbid conditions. *H. H. S.*

CATANEI (A.). Recherches parasitologiques et expérimentales sur la sporotrichose, les blastomycoses et l'actinomycose, en Algérie. [**Parasitological and Experimental Researches on Sporotrichosis, Blastomycoses and Actinomycosis in Algeria.**]—*Arch. Inst. Pasteur d'Algérie.* 1934. Sept. Vol. 12. No. 3. pp. 351–366. With 3 text figs. & 6 figs. on 1 plate.

This is an account of some fungi isolated, in Algeria, from human disease and from water. The clinical features and morbid anatomy are not given.

(1) *Sporotrichosis.*—A culture of *Rhinocladium Beurmanni* was recovered from a nodular sporotrichosis of the lower limb. It had little or no pathogenicity for white mice, and it agreed with the descriptions by DE BEURMANN and GOUGEROT of the French strains of this species.

A fungus, identified as *Sporotrichum biparasiticum* Bubak, was cultivated from a sample of well water. Descriptions of its growth characters and spore measurements are given. It proved to be pathogenic for mice and other animals by inoculation, subcutaneously or intravenously, and showed much greater virulence than the culture of *R. Beurmanni.* Subcutaneous inoculation gave rise to a gumma which broke down after about eight weeks and discharged on the surface ; cure followed and there was no tendency towards a generalized infection. Intraperitoneal inoculation into rabbits, mice or new-born guineapigs caused a peritoneal sporotrichosis, sometimes with foci in the spleen and liver, and death. The fungus appeared in the lesions usually as masses of tangled filaments with rounded or oval elements 2·5 μ to 4·5 μ in diameter. The fungus could be cultivated from the pus or lesions but attempts to transmit the infection from animal to animal by inoculation of morbid material failed, except in one instance when a local lesion resulted.

The serum of infected animals contained no demonstrable antibody and, after recovery, the animal was susceptible to reinfection.

(2) *Blastomycosis.*—Two "new" fungi are described. The first, a yeast fungus belonging to the genus *Candida* Berkhout, was isolated from blastomycosis of the forearm. A description is given of the growth characters on various media, fermentations, etc., and the fungus has been named *Candida Montpellieri* n. sp. The description leaves the reviewer in doubt as to the justification for placing the fungus in the genus *Candida*, and a similar doubt may have affected the authors for they named it at first "*Cryptococcus.*" The identity cannot be confirmed as the culture has been lost.

Intravenous injection of large quantities of the culture into a rabbit was without apparent effect, but subcutaneous inoculation caused a local gumma which later broke down and discharged. Cultures recovered from the animals were not more virulent than the parent culture. Intravenous inoculation evoked a high titre of agglutinin in a rabbit's blood but did not protect the animal against the effects of

subcutaneous inoculation. The agglutinating serum had no effect on "*Monilia albicans.*"

The second fungus from Blastomycosis was isolated from a lesion of the lower extremity. It appeared in the tissues as bodies 4·0 μ to 10·0 μ by 2·0 μ to 6·0 μ, grouped in little masses or in short chains, usually in close relation to giant cells. The fungal elements were brownish and unstainable. A culture was obtained by puncturing an unbroken gumma, and the fungus was identified as a *Hormodendron* Bonorden 1857, and was named *Hormodendron algeriensis* n. sp.

Subcutaneous inoculation, into a rabbit, of a culture in hay infusion caused a voluminous abscess, but no generalization followed. Pigeons and mice were apparently resistant.

(3) *Actinomycosis.*—There were three cases of actinomycosis, two affecting the face and one pleuropneumonic. The "grains" were greyish-white, about 0·5 mm. in diameter, soft and irregular in shape, they were made up of slender mycelial filaments about 1·0 μ in diameter, Gram positive but not acid fast. Only the grains from the lung showed club-formations. Culture, in all cases, yielded the same species of actinomyces, the anaerobic *Cohnistreptothrix Israeli* Kruse 1896. Animal inoculation with the cultures or "grains" gave negative results. *J. T. Duncan.*

SHREWSBURY (J. F. D.). **The Genus** *Monilia.*—*Jl. Path. & Bact.* 1934. May. Vol. 38. No. 3. pp. 313–354. With 32 figs. on 9 plates. [27 refs.]

This article gives an account of a careful study of various species of fungi which have been assigned to the genus *Monilia.* The author describes the morphology characteristic of the type and some of the departures from it which several of the species present. He next considers the staining reactions, cultural characters on solid and liquid media, biochemical properties in relation to action on litmus milk, their proteolytic and saccharolytic powers and general fermentative action, and ends with a discussion as to which of the species examined belong strictly to the genus. Those investigated were Mackey's "M," *Monilia psilosis, M. albicans, M. candida, M. krusei, M. pinoyi, M. tropicalis,* and Marrett's "M." It is shown that some at least of these, *M. krusei* Cast. for example, have no right to a place in the genus. It will be seen that the paper is largely a systematic study and a most praiseworthy attempt to bring order out of the chaos into which this, at present, somewhat arbitrary group has fallen. *H. H. S.*

SALAH (M.). **Sternal Puncture. (A Preliminary Note.)**—*Jl. Egyptian Med. Assoc.* 1934. Oct. Vol. 17. No. 10. pp. 846–850. With 1 fig.

The author uses for sternal puncture a lumbar puncture needle made of hard steel which with its stilet is cut to 3 cm. length. A moveable shield fits round the needle with a screw to fix it at the required distance [*cf.* KASSIRSKY, this *Bulletin*, Vol. 31, p. 658]. This varies from 0·4 to 1·0 cm. according to age and size of patient. The middle of the sternum opposite the third space is the best place for puncture. No incision and no local anaesthesia are needed. He discusses the value of puncture in the diagnosis of anaemias and splenomegalies. He has used the method in a series of 92 cases without untoward effect.

A. G. B.

BRUMPT (E.). Au sujet des changements de propriétés biologiques des germes chez divers hôtes vecteurs vicariants. [**Changes of Biological Properties of Microbes in Different Vector Hosts.**]—*Bull. Soc. Path. Exot.* 1934. Nov. 14. Vol. 27. No. 9. pp. 830–831.

The text of Brumpt's paper was the failure of an attempt by LE CHUITON and BOURGAIN to convert a strain of murine typhus into boutonneuse fever by passage through *Rhipicephalus sanguineus*; they were unable to transmit the strain by the progeny of the tick. Brumpt points out that intermediate hosts whether normal or vicarious do not seem to modify the biological properties of germs which they transmit. Thus, *Spirochaeta duttoni* has the same characters whether it is transmitted by *O. moubata* as in Central Africa or by *O. erraticus* as in Dakar, whereas *S. hispanica* though likewise transmitted by *O. erraticus* has retained its peculiar characters, such as its pathogenicity for the guineapig. The virus of exanthematic typhus which has developed in fleas is not transformed into murine typhus and that of Rocky Mountain fever transmitted from louse to louse for a period of 5 months also keeps its own characters. *Trypanosoma cruzi* is equally virulent whether transmitted by Triatoma, Rhodnius or *O. moubata*. For this reason Brumpt cannot admit the unicist hypotheses of those who think that the various forms of typhus are all due to one virus which is transformed in passage through louse, flea, tick or mite or of those who suppose that *T. rhodesiense* loses some of its virulence and becomes *T. gambiense* by a change of vector to *G. palpalis*.

A. G. B.

ANDERSON (Nelson Paul) & AYRES (Samuel), Jr. **Light Sensitive Dermatoses.**—*Jl. Amer. Med. Assoc.* 1934. Oct. 27. Vol. 103. No. 17. pp. 1279–1285. With 7 figs. [41 refs.]

There is reason to believe that disturbed sulphur metabolism plays a part in the production of light dermatoses. It has been shown, for example, that the lethal action of ultra-violet light on paramoecia is diminished by the interposition of a solution of cystin, an amino-acid containing sulphur. It is notable, too, that the protective epithelial tissues, such as skin, hair and nails, contain a greater sulphur content than do other tissues.

Haematoporphyrin has a powerful light sensitizing power when injected experimentally. But it has not been shown that it is an underlying cause of light sensitivity; indeed it has only been found in the urine of a small proportion of cases of hydroa aestivale, and further porphyrin in the urine has been found in many cases which were not light-sensitive; nor was it present in the authors' cases of light sensitivity; in these cases no other photo-dynamic substances could be found in the urine.

The irritative effect of sunlight on lupus erythematosus is well known, for it often follows severe sunburn. An account is given of a dietetic treatment of that condition but the cause of its effectiveness is not known. Various drugs, including eosin, acriflavine and methylene blue are light sensitizers; their usefulness in therapeutics is problematical. Sunlight is a factor in the production of many cases of vitiligo and light plays a part in the production of the skin lesions of pellagra, although light is not the only factor involved. Fagopyrism

is a disease occurring only in lightly pigmented cattle which have ingested buckwheat, which contains a light sensitizing substance.

Some figures illustrate the effects of treatment in some dermatoses.

R. G. Bannerman.

CHOPRA (R. N.), GHOSH (Sudhamoy) & DUTT (Ashutosh). Some Inorganic Preparations of Indian Indigenous Medicine. Part I. *Abhra Bhasma.—Indian Jl. Med. Res.* 1934. Oct. Vol. 22. No. 2. pp. 285–288.

CLEMENTS (F. W.). The Relation of Diet to Tropical Ulcer: a Preliminary Report.—*Med. Jl. Australia.* 1934. Apr. 21. 21st Year. Vol. 1. No. 16. pp. 520–522.

CORMACK (R. P.). Some Subjects for Medical Research in East Africa.—*East African Med. Jl.* 1934. Dec. Vol. 11. No. 9. pp. 276–285.
A paper worth perusal but unsuitable for summary.

DEVASAGAYAM (A.). Notes on Some Intestinal Affections of Tamil Coolies.—*Malayan Med. Jl.* 1934. Dec. Vol. 9. No. 4. pp. 200–204.

DONATELLI (Leonardo). Ricerche farmacologiche sull'olio di chenopodio. Nota seconda.—*Pediatria.* 1935. Feb. 1. Vol. 43. No. 2. pp. 161–176. With 16 figs. English summary (6 lines).

GORGAS MEMORIAL INSTITUTE. Annual Report of the Gorgas Memorial Institute, 1933 [GRAYSON (Cary T.), MARTIN (Franklin) & CLARK (Herbert C.)]. 73rd Congress. 2nd Session. Document No. 205. House of Representatives. 8 pp.

KIKUTH (Walther). Neue Wege in der Behandlung der Tropenkrankheiten.—*Klin. Woch.* 1934. Nov. 10. Vol. 13. No. 45. pp. 1593–1595.

KITABATAKE (Eitaro). Parasitic Diseases among Immigrants in Aikawa Village, Kinshu and in Denshodai Farm, Eiko, Manchoukuo.—*Jl. Oriental Med.* 1935. Feb. Vol. 22. No. 2. [In Japanese pp. 369–377. With 2 figs. English summary p. 32.]

KOUWENAAR (W.), MAASLAND (J. H.) & WOLFF (J. W.). Onderzoekingen over het rhinoscleroom op Sumatra.—*Geneesk. Tijdschr. v. Nederl. Indië.* 1934. Sept. 11. Vol. 74. No. 19. pp. 1187–1200. With 1 map & 8 figs. on 4 plates.

KOUWENAAR (W.), MAASLAND (J. H.) & WOLFF (J. W.). Onderzoekingen over het rhinoscleroom op Sumatra.—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1934. Nov. 6. Vol. 74. No. 23. pp. 1494–1513. With 1 plate. [30 refs.] English summary.

LEASE (Jane Germer) & PARSONS (Helen Tracy). The Relationship of Dermatitis in Chicks to Lack of Vitamin B_2 and to Dietary Egg-White.—*Biochem. Jl.* 1934. Vol. 28. No. 6. pp. 2109–2115. With 1 text fig. & 4 figs. on 1 plate. [24 refs.]

DE LEON (W.), DE JESUS (P. I.) & RAMOS (J. M.). Weights of Visceral Organs of Filipinos in Different Diseases.—*Philippine Jl. Sci.* 1934. Aug. Vol. 54. No. 4. pp. 495–522.

VAN LOON (J. Potter). Een geographisch-pathologische bijdrage tot het galsteenvraagstuk. Onderzoek met de duodenumsonde bij Javanen en Chineezen.—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1934. Dec. 25. Vol. 74. No. 26. pp. 1736–1748. With 2 figs. [34 refs.]

MANSON-BAHR (P.). Whither Tropical Medicine? An Epitome of Scientific Activities in British Tropical Possessions, together with a Consideration of the Position which Tropical Medicine occupies in Scientific Medicine at the Present Time.—*Proc. Roy. Soc. Med.* 1934. Nov. Vol. 28. No. 1. pp. 57–66 (Sect. Trop. Dis. & Parasit. pp. 1–10).

O'CONNOR (F. W.). Concern of the United States with Tropical Diseases.—*Amer. Jl. Pub. Health.* 1935. Jan. Vol. 25. No. 1. pp. 1–10.

PEIRIER (J. C.). Matières colorantes injectables.—*Bull. Soc. Méd.-Chirurg. Indochine.* 1934. Aug.–Sept. Vol. 12. No. 7. pp. 704–719. With 5 charts.

PRICE (A. Grenfell). The White Man in the Tropics.—*Med. Jl. Australia.* 1935. Jan. 26. 22nd Year. Vol. 1. No. 4. pp. 106–110.

SCHWARTZ (Joseph L.). The Practice of Medicine in American Samoa.—*U.S. Nav. Med. Bull.* 1935. Jan. Vol. 33. No. 1. pp. 27–35. With 3 figs. on 2 plates.
An account of surgical practice.

STEUDEL (E.). Die Seuchenbekämpfung in Deutsch-Ostafrika.—*Med. Welt.* 1934. Nos. 39 & 41. 18 pp.

UHLENHUTH (P.). Neue Fortschritte auf dem Gebiet der Antimonbehandlung von Tropenkrankheiten.—Reprinted from *Therap. d. Gegenwart.* 1934. No. 10. 6 pp.

VON WIKULLIL (L.). Badgastein in the Treatment of Tropical Diseases.—*Jl. Trop. Med. & Hyg.* 1935. Mar. 15. Vol. 38. No. 6. pp. 74–76.

ZIEMANN (Hans). Neueres aus dem Gebiete der Infektionskrankheiten der exotischen Pathologie, Parasitologie und Hygiene.—*Med. Klin.* 1935. Jan. 25. Feb. 1 & 8. Vol. 31. Nos. 4, 5 & 6. pp. 121–124; 153–154; 186–188.

REVIEWS AND NOTICES.

REDAELLI (P.); BASERGA (A.); GIORDANO (A.); SORGE (G.); PARADISO (F.) & FIORENTINO (A.); ZANGRI (G.); PIAZZA (G.). **Ricerche e studi sulla leishmaniosi viscerale del Mediterraneo.** [Studies on Visceral Leishmaniasis of the Mediterranean.]—191 pp. With 7 plates (2 coloured) & 1 text fig. 1933. Catania: Società Medico-Chirurgica di Catania. [Lira 30.]

The publication contains a series of eight articles by various authors on canine and infantile kala azar as it occurs in Catania. The first and most comprehensive of these is a detailed study of the pathology of canine kala azar based largely on naturally infected dogs which had been taken to Catania from Malta by ADLER for the purpose of sandfly feeding experiments. The information given is mainly confirmatory of previous work. It is worthy of note, however, that apart from the well known generalized distribution of leishmania throughout the internal organs in histiocytes the parasites occur fairly uniformly in these cells in all parts of the skin, even in animals showing no visible skin changes, and also in the mucosa of the nose, mouth and oesophagus, as well as in that of the entire intestinal tract. In the second article attention is drawn to the changes in the bone marrow of infected dogs, while in the third emphasis is laid on the fact that occasionally parasites occur in megacaryocytes. The fourth article records the experimental infection of the spermophile (*Citillus citillus*) with a canine strain of the kala azar parasite and gives some details of the histopathology of the infection in this animal. The fifth article is a review of recent work on the subject of sandfly transmission of kala azar, while the last three are devoted to a consideration of the infantile disease, particularly the success of intramuscular treatment with neostibosan and fuadin and the more prolonged rate of excretion of antimony when the organic compounds are given intramuscularly, a method of administration which appears to reduce the toxic effects by forming deposits from which the drug is slowly absorbed. *C. M. Wenyon.*

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